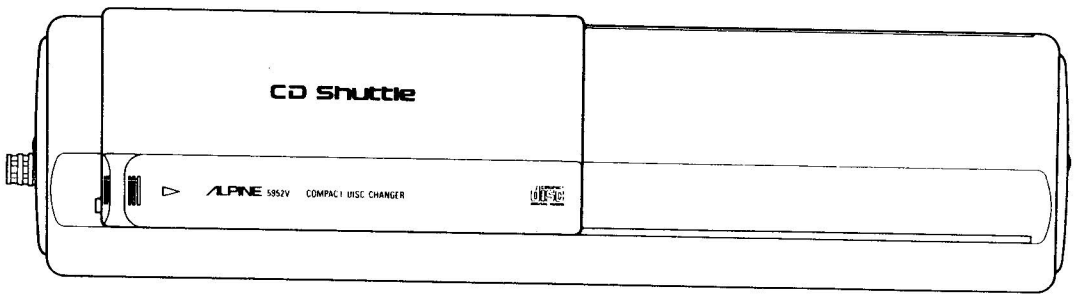
# ALPINE SERVICE MANUAL

# Compact Disc Remote Changer

## CD Shuttle

COMPACT disc DIGITAL AUDIO

- The model descrived in this manual is developed from Model 5957. For information that is not mentioned in this service manual refer to the Service Manual 5957 (68P32133W02).
- For the CD changer mechanism parts (DR24A010) of this model, refer to the Service Manual • DR Series (68P30571W01).




# 5952V

# Electrical Parts List

Note : The parts is not mentioned, refer to the Service Manual 5957 (68P32133W02).

| Symbol No. | Part No. | Description |
|---|---|---|
| **Main P. C. Board** | | |
| **Capacitors** | | |
| C204 | 08S65128F69 | CP., 0.01μF |
| C211 | 08S65128F57 | CP., 1000pF |
| C212 | 08S65128F57 | CP., 1000pF |
| E215 | 23T25149W09 | ELY., 10μF / 16V |
| E216 | 23T25149W09 | ELY., 10μF / 16V |
| C217 | 08S65128F67 | CP., 6800pF |
| C218 | 08S65128F67 | CP., 6800pF |
| C804 | 08S65128F57 | CP., 1000pF |

| Symbol No. | Part No. | Description |
|---|---|---|
| **Resistors** | | |
| R135 | 06S64996F06 | CP., 150K ohm 1/10W |
| VR101 | 18T91059F19 | Variable, 100K ohm |

# Cabinet Assembly Parts List

Note : The parts is not mentioned, refer to the Service Manual 5957 (68P32133W02).

| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 1 | | 13C31167W05 | Assy., Front Escutcheon |
| 2 | | 15D22218W05 | Cover, Top |

| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| | | | |

# Packing Assembly Parts List

Note : The parts is not mentioned, refer to the Service Manual 5957 (68P32133W02).

| Symbol No. | Part No. | Description |
|---|---|---|
| 101 | 56S30003W20 | Carton, Packing (Individual) |
| 102 | 56D40124W01 | Tray, Packing (Bottom) |
| 103 | 56D40124W02 | Tray, Packing (Top) |
| ○ 105 | 68P32052W26 | Owner's Manual |
| △ 105 | 68P32052W48 | Owner's Manual |
| ● 105-1 | 68P32052W26 | Owner's Manual |
| ● 105-2 | 68P32052W34 | Owner's Manual |

| Symbol No. | Part No. | Description |
|---|---|---|
| | | |

**Notes :** ○ : For North American Model only, △ : For General Foreign Model only, ● : For Canadian Model only, Others : Common.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# ALPINE SERVICE MANUAL

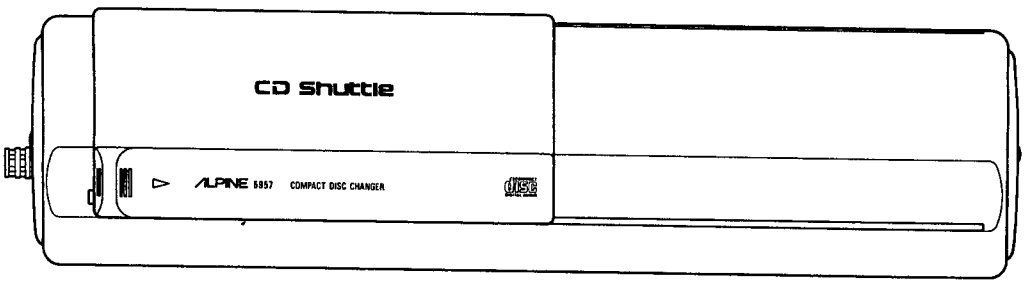
ALPI -00541

# Compact Disc Remote Changer

## CD Shuttle

COMPACT disc DIGITAL AUDIO

- For the CD deck mechanism parts (DR24A010) of this model, refer to the Service Manual • DR Series (68P30571W01).




# 5957

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Disassembly Instructions ..... Please refer to the Service Manual • 5952 (68P13322W02)

# Specifications

## <CD SECTION>

| | |
|---|---|
| System | Optical (Compact Disc System) |
| Quantizing Bit Number | 16 Bit Linear System |
| Channels | 2 Channels, Stereo |
| Distortion (997Hz) | 0.02% |
| Frequency Response (Ref. 1kHz) | ±2dB (17Hz~19.997kHz) |
| S/N Ratio | 90dB |
| Channel Separation | 80dB (997Hz) |
| | 70dB (10.007kHz) |
| De-Emphasis (Ref. 1kHz) | -20±3dB (4kHz) |
| | -20±3dB (16kHz) |
| Currents Consumption (at PLAY) | 1A |

## <GENERAL>

| | |
|---|---|
| Power Supply | 14V DC (10.5~16V allowable) |
| Output Voltage/Impedance | 750±150mV/10k ohm |
| Semiconductors | 19 IC's, 22 Transistors, 12 Diodes, 2 Zener Diodes |
| Dimensions (W×H×D) | 279×71×178 mm |
| Weight | 2.5kg |

## <COMPACT DISC>

| | |
|---|---|
| Maximum Playback Time (at Stereo) | More than 60 minutes |
| Track Pitch | 1.6$\mu$m |
| Modulator Frequency | 44.1kHz |
| Transfer Rate | 4.3218 Mbit/sec. |
| Dimensions | 120×1.2 mm |

**Note :** Due to continuing product improvement, specifications and designs are subject to change without notice.

# FEATURES

The Alpine 5957 is the smallest car CD shuttle available in the market today.

The 5957 incorporates the latest technology with the following unique functions and features:

- **CD Shuttle Mounting Versatility**
  The 5957 can be mounted with up to 30 degrees off axis from the horizontal or vertical position. This allows the installer to choose from a variety of mounting locations including: the trunk, under or behind the seat, or the glove compartment.

- **8X Oversampling**

- **Dual DAC, 20-bit System**

- **Interface Options**
  The 5957 CD Shuttle can be used with a 5953 or 5954 controller that allows it to interface with an existing car audio system. It is also fully compatible with Alpine's Shuttle-ready head units with built-in CD changer controls. The 5955 is another controller option which incorporates an FM modulator to allow the CD signal to be played through the FM tuner of an existing system.*

- **6 Disc Magazine**
  Six 5-inch compact discs can be housed in the CD magazine and selected by operating your control unit. You can access any one of the 6 CDs in the magazine quickly and easily for playback of an entire disc or individual selections.

* All controllers featuring an RCA-type changer input (except 7618, 7294S, 7516, and 7292S) require a 4913 adapter which is sold separately.

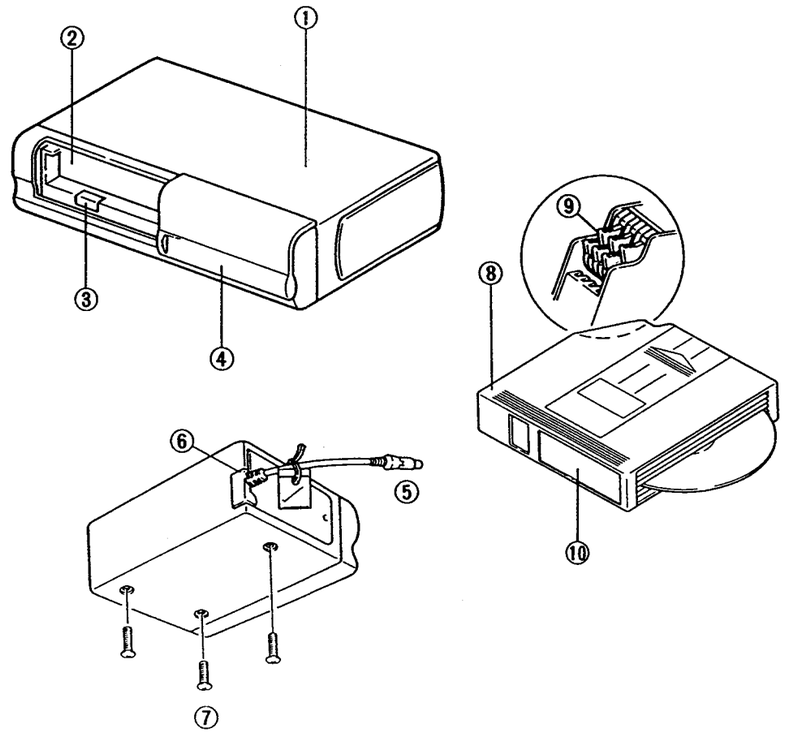
# IMPORTANT NOTICE

This compact disc Shuttle has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules. This equipment generates and uses radio frequency energy, and it must be installed and used properly in accordance with the manufacturer's instructions.



# PARTS IDENTIFICATION

① **CD Shuttle Unit**
② **CD Magazine Insertion Slot**
③ **Eject Button**
Press this button to eject the CD magazine.
④ **CD Magazine Door**
⑤ **8-pin DIN Connector**
⑥ **Connector Cap**
⑦ **Shipping Screws**
Must be removed before operating the unit.
⑧ **CD Magazine**
6 discs can be housed in this case.
⑨ **Disc Lever**
⑩ **Disc Index Labels**
Put the Index Label on the CD Magazine.

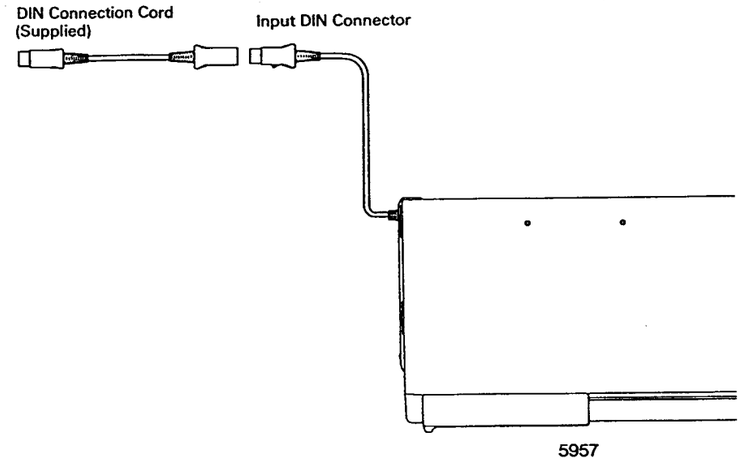



# CONNECTIONS

The 5957 CD Shuttle is not equipped with built-in control unit and pow amplifier. Consult with your authorized Alpine dealer for connections of y control unit and power amplifier. Refer to the following illustration for connections of the Shuttle.

**NOTE:**
The 5957 is designed for 12-volt DC negative ground operation so mak sure that your vehicle has this system before making electrical connectio

**8-pin DIN Connector**
Connect this to your control unit or to the input of your head unit.



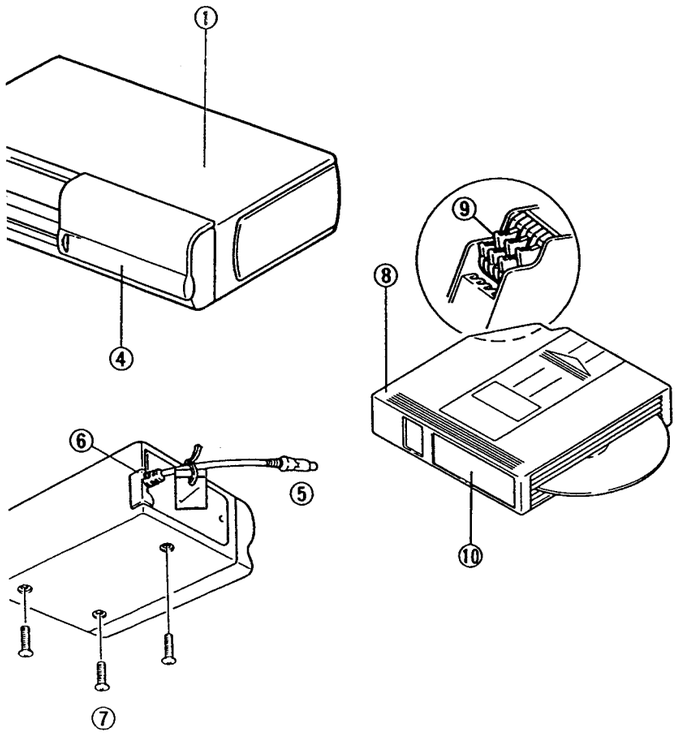

**NOTE:**
When connecting to a unit with RCA-type connectors for changer inpu the 4913 adaptor. The exceptions are 7618, 7516, 7294S, and 7292S wh do not require the use of an adaptor.



ALPI-00541 / DRUCK 1

# PARTS IDENTIFICATION

**uttle Unit**
**ıgazine Insertion Slot**
**Button**
:his button to eject the CD magazine.
**ıgazine Door**
**DIN Connector**
**:ctor Cap**
**ing Screws**
ıe removed before operating the unit.
**ıgazine**
; can be housed in this case.
**ever**
**ıdex Labels**
: Index Label on the CD Magazine.

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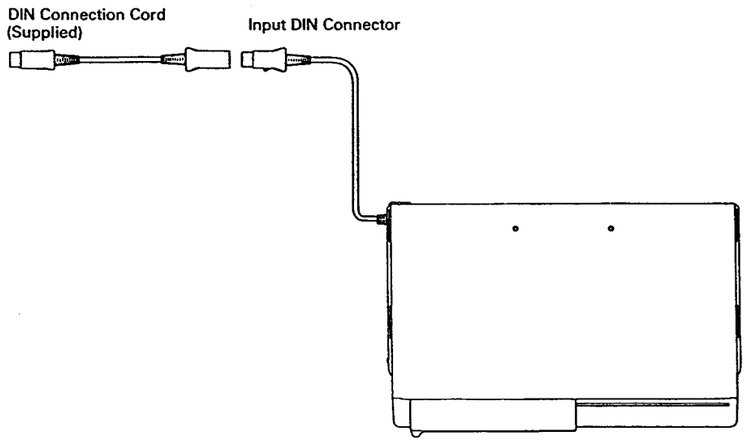


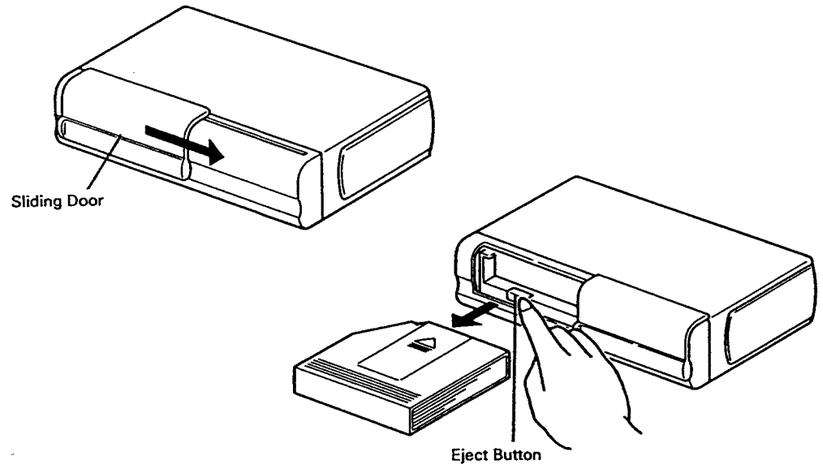

**NOTE:**
When connecting to a unit with RCA-type connectors for changer input, use the 4913 adaptor. The exceptions are 7618, 7516, 7294S, and 7292S which do not require the use of an adaptor.



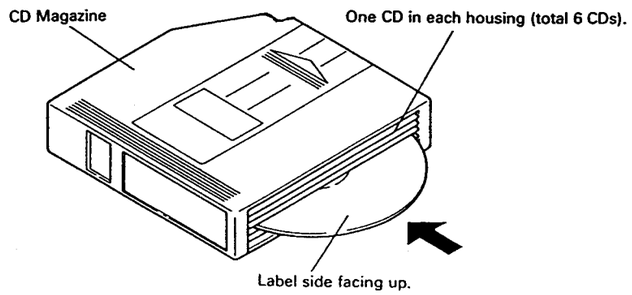
# OPERATION

**Preparation for Playback**
Before using, follow the procedures below to set the CD magazine in the CD Shuttle.

1. Slide the door to the right and press the eject button to eject the CD magazine.




2. Insert your discs (up to 6) into the disc slots of the CD magazine with the label side facing up.





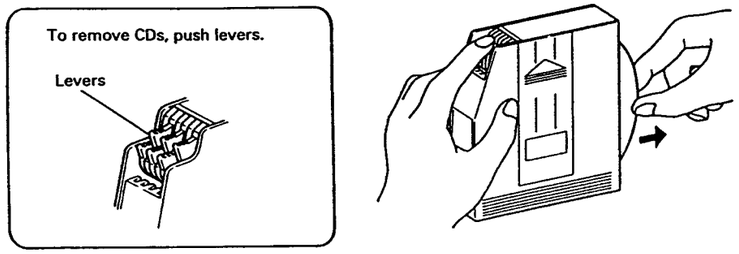

ALPI-00541 / DRUCK 2

# OPERATION

To remove discs already in the CD magazine, push the lever on the CD magazine for the disc you wish to eject. The disc will come halfway out of the magazine. Grasp the edge of the disc with your finger and pull it out.

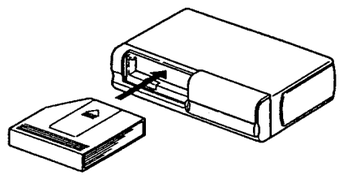
**NOTE:**

Hold the disc so you will not leave fingerprints on the disc surface (refer to "PROPER CARE OF YOUR DISC" section).






3. Insert the CD magazine all the way into the Shuttle with the narrow side facing the unit as shown here.
4. After inserting the CD magazine, slide the door to the left to close.





**NOTES:**

1. Do not insert heat-deformed discs into the CD magazine.
2. Do not forcibly remove the CD magazine by hand.
3. Only one disc can be inserted in each housing slot. Attempting to insert another disc may cause damage.
4. Only compact discs containing the mark shown below can be used.

COMPACT disc DIGITAL AUDIO

5. To play 3-inch discs, you must use the (4908) adapter ring (sold separately).



# PRECAUTIONS

Do not attempt to repair or service the unit yourself; return the unit to your nearest authorized Alpine Service Station for servicing.

When your car is parked for a long period of time during the summer or winter, the temperature inside the car fluctuates greatly. The temperature inside the vehicle should be between +60°C and −10°C (+140°F and −14°F) when operating the unit.

The 5957 and 5950 are not compatible. That means the controllers and magazines for these units are not interchangeable. Please be sure you have the correct controller for the 5957. Changer controllers with an RCA-type changer input (except 7618, 7294S, 7516, and 7292S) require a 4913 adapter which is sold separately. If you have any questions, please contact your authorized Alpine dealer.

Never install the Shuttle on the rear or front deck of car as direct sun and high temperature may cause damage to the Shuttle.

**Cautions during Playback**

Playing a disc while driving on a very bumpy road may result in skips but this will not scratch the disc or damage the player.

The noise level on compact discs is much lower than on analog-type records or tapes. Therefore, before playing a disc, turn the volume down all the way then adjust the level by gradually turning the volume up once playback begins.
Do not turn the volume up too abruptly as this could damage the speakers.

**The audio control unit box of the Alpine 5953 or 5954 (sold separately) cannot be mounted on the rear panel of the 5957.**

**IMPORTANT**

Please record the serial number of your unit in the space provided on the back cover of this manual and keep it as a permanent record. The serial number plate is located on the rear of the unit.





# PROPER CARE OF YOUR DISC

**Proper Handling**

Handle your disc as shown. Do not drop the disc while handling. H disc so you will not leave fingerprints on the surface. If the surface is scratched, it may cause the pickup to skip signal tracks. Do not affix paper, or gummed labels on the disc. Do not write on the disc.

Proper Improper Proper

**Keep Your Discs Clean**

Fingerprints, dust, or soil on the surface could cause the pickup to s signal tracks. For routine cleaning, wipe the playing surface with a cl cloth from the center of the disc to the outer edge. If the surface is h soiled, dampen a clean soft cloth in a solution of mild neutral detergei cleaning the disc. (Fig. A)

**Disc Accessories**

Various disc accessories for protecting the surface of the disc and improving sound quality (see Fig. B) are available on the market. How many of them will increase the thickness and/or diameter of the disc. such accessories may place the disc beyond the specified size limitati cause the changer to malfunction. We recommend that these access be used on discs placed in the 5957.

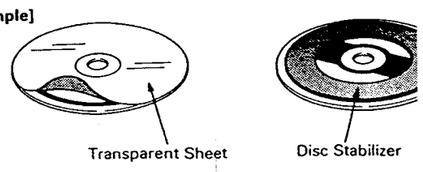



**Fig. A** **Fig. B**

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# PROPER CARE OF YOUR DISC

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Handle your disc as shown. Do not drop the disc while handling. Hold the disc so you will not leave fingerprints on the surface. If the surface is scratched, it may cause the pickup to skip signal tracks. Do not affix tape, paper, or gummed labels on the disc. Do not write on the disc.

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**Disc Accessories**
Various disc accessories for protecting the surface of the disc and improving sound quality (see Fig. B) are available on the market. However, many of them will increase the thickness and/or diameter of the disc. Using such accessories may place the disc beyond the specified size limitations and cause the changer to malfunction. We recommend that these accessories not be used on discs placed in the 5957.

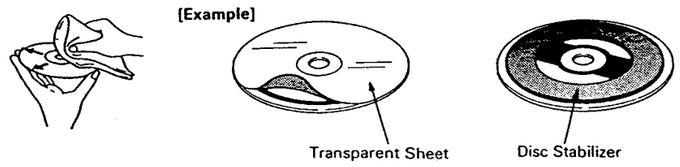
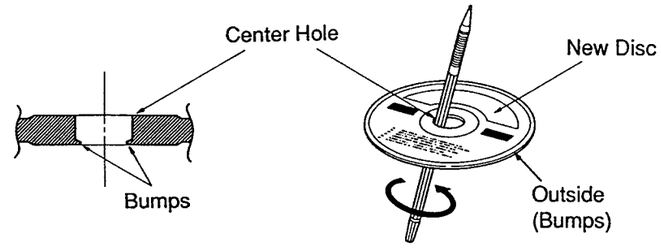



**Fig. A** **Fig. B**

# PROPER CARE OF YOUR DISC

**Caution for new discs**
When a newly purchased disc is inserted into the changer magazine, the disc may fail to play after initial loading. This is caused by small bumps around the center hole and outside of the disc, which prevent stable loading into the correct position.
To remove the bumps, rub the inside edge of the hole and outside edge of the disc with a ball-point pen or other such instrument, then insert the disc again.

**NOTE:**
The mechanism automatically prevents this type of disc from playing as a protective measure. This is not an indication of faulty operation.




**Damaged Disc**
Do not attempt to play cracked, warped, or otherwise damaged discs. Playing a bad disc could severely damage the playback mechanism.

**Storage**
When not in use, place your discs in their individual cases and store them in a cool place away from the sun, heat, and dust.

# Adjustment Procedures

## 1. Jitter Adjustment

1-1 Connections

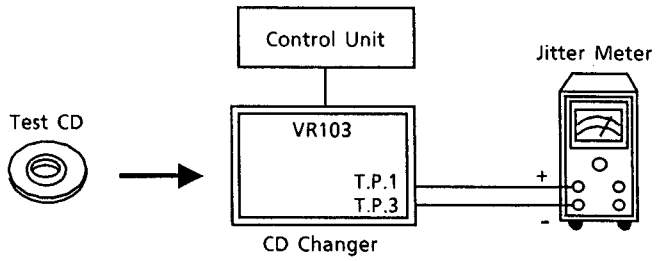



Figure 1

1-2 Preparations

(1) Test CD ..... A-BEX TCD-782 (1 st track)
(2) Power Supply Voltage ..... DC14V

1-3 Switch Settings

(1) Power Switch (Control Unit) ..... ON
(2) Disc Play/Pause Switch (Control Unit) ..... PLAY
(3) Others (Control Unit) ..... OFF

1-4 Adjustment Procedures

(1) Set the mode to playback with the test disc loaded.
(2) Rotate VR103 fully counterclockwise.
(3) Using the Jitter meter, confirm the T.P.1 Signal shows a value.
(4) Carefully rotate VR103 clockwise until the Jitter meter shows a minimum value and then increases by +0.5nS from the minimum value.

## 2. Tracking Balance Adjustment

2-1 Connections

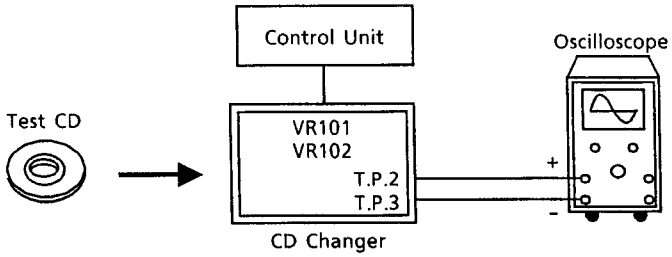



Figure 2

2-2 Preparations

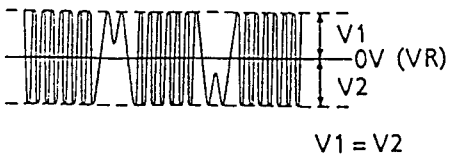
(1) Test CD ..... A-BEX TCD-782 (8th track)
or SONY YEDS-18 (7th track)
(2) Power Supply Voltage ..... DC14V

2-3 Switch Settings

(1) Power Switch (Control Unit) ..... ON
(2) Disc Play/Pause Switch (Control Unit) ..... PLAY
(3) Others (Control Unit) ..... OFF
(4) RF Control (VR102) ..... Mechanical Center
(First time only)

2-4 Adjustment Procedures

(1) Load the CD magazine in the drive mechanism, select the test CD, and play the no-signal (-∞dB) track.
(2) Connect wires to T.P.3 and T.P.4.
(3) Connect the positive (+) input of the oscilloscope to T.P.2 and the negative (-) input of the oscilloscope to T.P.3.
(4) Observe the T.P.2 signal viewed from VR on the oscilloscope. (VR Reference = 0V)
(5) Adjust VR101 so that the T.P.2 signal level is symmetrical above and below relative to VR (0V). (Whole waveform moves up and down.)
(6) Disconnect the wires previously connected to T.P.3 and T.P.4.




V1 = V2

Figure 3

## 3. Tracking offset Adjustment

3-1 Connections

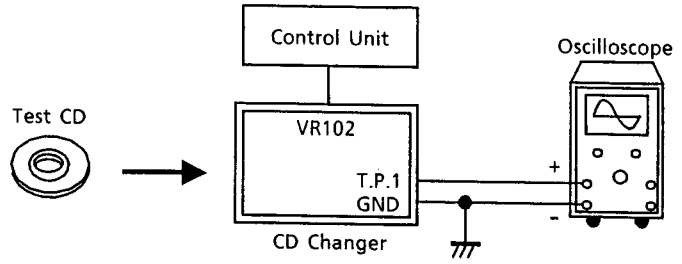



Figure 4

3-2 Preparations

(1) Test CD ..... A-BEX TCD-721 (6th track)
(2) Power Supply Voltage ..... DC14V

3-3 Switch Settings

(1) Power Switch (Control Unit) ..... ON
(2) Disc Play/Pause Switch (Control Unit) ..... PLAY
(3) Others (Control Unit) ..... OFF

3-4 Adjustment Procedures

(1) Connect the positive (+) input of the oscilloscope to T.P.1 and the negative (-) input of the oscilloscope to GND.
(2) Load the CD magazine in the drive mechanism, select the test CD, and play the track that has 1.2mm-wide scratch.
(3) Observe the T.P.1 signal on the oscilloscope.
(4) Adjust VR102 so that the returning waveform after the T.P.1 signal drop out is minimized as much as possible.
(5) Conduct the tracking balance adjustment once again.

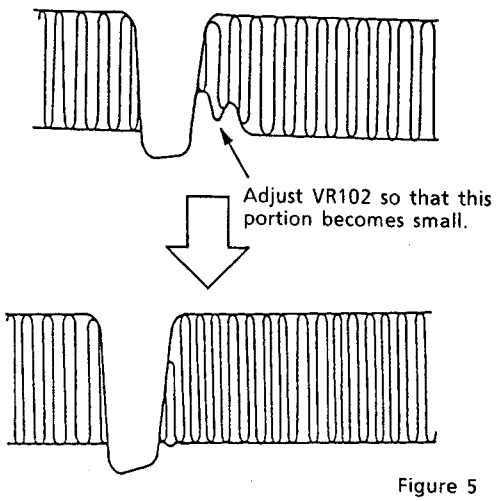



Figure 5

# Adjustment Locations

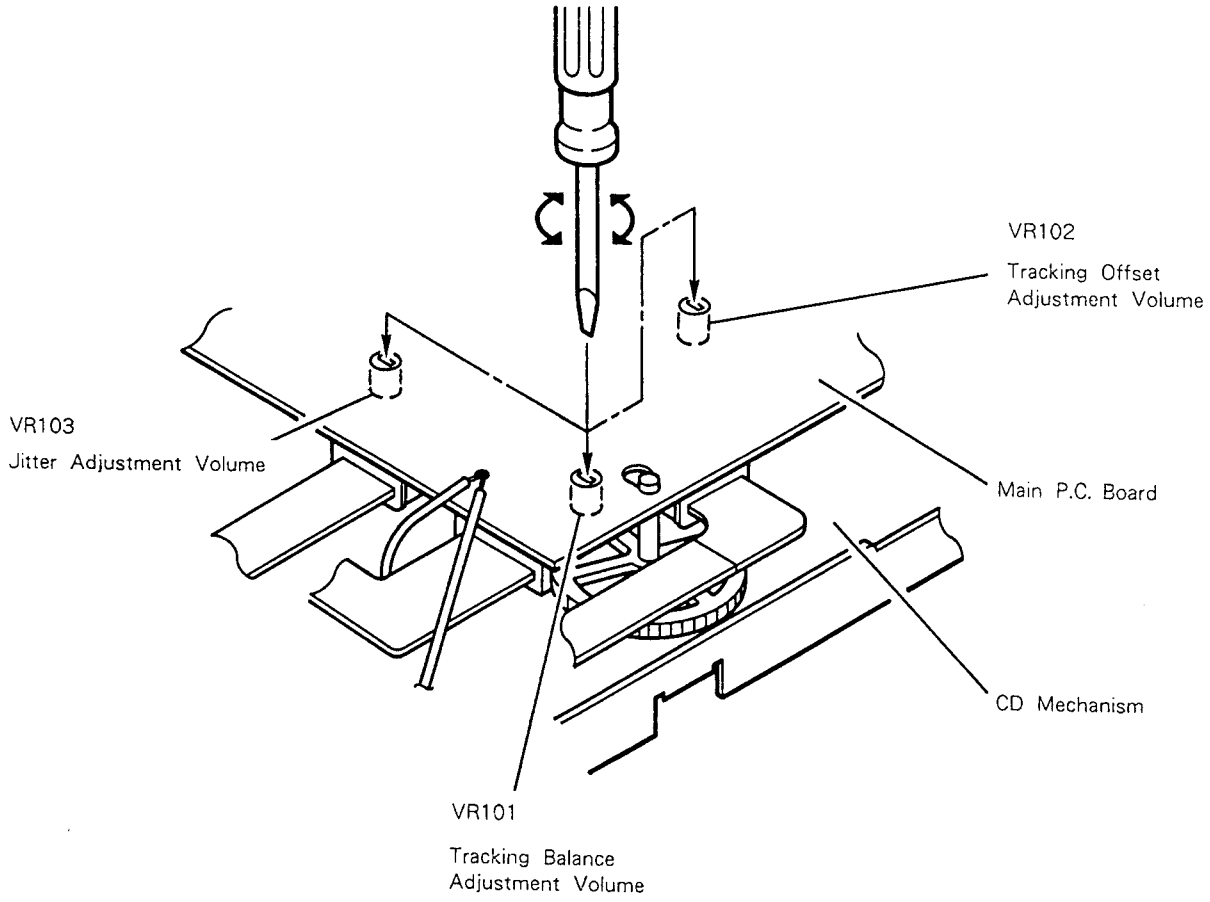
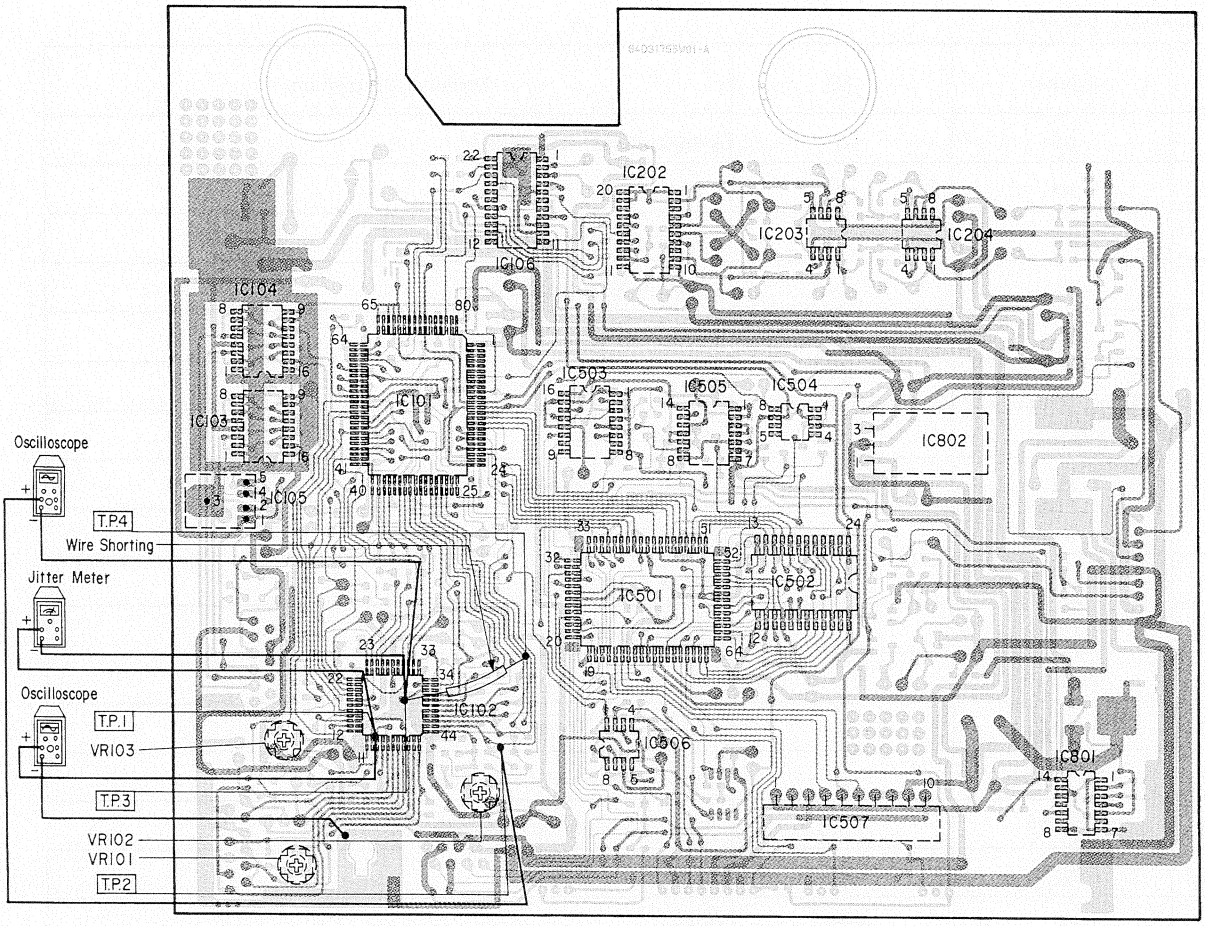



**Figure 6**




**Main P.C. Board (Foil Side)**

# Description of IC Terminal

**35253W01 (IC501)**

| No. | Symbol | I/O | Terminal Description |
|---|---|---|---|
| 1 | A5 | O | S-RAM (IC502) ADDRESS 5 |
| 2 | A4 | O | S-RAM (IC502) ADDRESS 4 |
| 3 | A3 | O | S-RAM (IC502) ADDRESS 3 |
| 4 | A2 | O | S-RAM (IC502) ADDRESS 2 |
| 5 | A1 | O | S-RAM (IC502) ADDRESS 1 |
| 6 | A0 | O | S-RAM (IC502) ADDRESS 0 |
| 7 | $\overline{\text{RESET}}$ | I | SYSTEM RESET |
| 8 | X2 | — | SYSTEM CLOCK 2 (4.19MHz) |
| 9 | X1 | — | SYSTEM CLOCK 1 (4.19MHz) |
| 10 | $\overline{\text{WE}}$ | O | S-RAM (IC502) $\overline{\text{WE}}$ |
| 11 | $\overline{\text{OE}}$ | O | S-RAM (IC502) OE |
| 12 | W OUT | I | WATCH DOG OUTPUT |
| 13 | FCONT | O | FOCUS GAIN CONTROL OUTPUT |
| 14 | M. CNT2 | O | LOADING/ELEVATOR MOTOR CONTROL |
| 15 | M. CNT3 | O | LOADING/ELEVATOR MOTOR CONTROL |
| 16 | NC | — | OPEN |
| 17 | NC | — | OPEN |
| 18 | NC | — | OPEN |
| 19 | MUTE | O | MUTE SIGNAL OUTPUT |
| 20 | M. CNT1 | I/O | LOADING/ELEVATOR MOTOR CONTROL |
| 21 | VCONT | O | CIRCUMFERENCE LSI REGULATOR CONTROL OUTPUT |
| 22 | LOAD. SW | I | LOADING ARM SW |
| 23 | H. TEMP | I | HIGH TEMPARATURE DETECT (SENSOR) |
| 24 | EJECT | I | MAGAZINE EJECT KEY INPUT |
| 25 | IGN | I | ACC ON/OFF SIGNAL |
| 26 | GND | — | GND |
| 27 | STBY | I | STANDBY RELEASE SIGNAL |
| 28 | BATT | I | BATTERY DETECT |
| 29 | BUS IN | I | BUS DATA INPUT |
| 30 | DISC NO | I | DISC NUMBER DETECT PHOTO (SENSOR) |
| 31 | DISC P | I | DISC DETECT PHOTO (SENSOR) |

| No. | Symbol | I/O | Terminal Description |
|---|---|---|---|
| 32 | LOD P | I | LOADING END PHOTO (SENSOR) |
| 33 | DISC OK | I | DISC RECEIVE CONFIRM PHOTO (SENSOR) |
| 34 | $\overline{\text{HOME}}$ | I | HOME POSITION SW |
| 35 | $\overline{\text{MAGZ}}$ | I | MAGAZINE DETECT SW |
| 36 | LIM | I | INSIDE CIRCUMFERENCE LIMIT SW |
| 37 | BUS OUT | O | BUS DATA OUTPUT |
| 38 | LSI RST | O | CIRCUMFERENCE LSI RESET SIGNAL |
| 39 | BUCK | O | TC9236F (IC101) BUS CLOCK |
| 40 | CCE | O | TC9236F (IC101) CE |
| 41 | GND | — | GND |
| 42 | DOUT SW | I | DIGITAL OUT ON/OFF SET UP |
| 43 | LOCK | I | TC9236F (IC101) LOCK SIGNAL INPUT |
| 44 | M. CNT-SET | I | MOTOR DRIVER CONTROL SIGNAL SET UP |
| 45 | BUS3 | I/O | TC9236F (IC101) BUS DATA 3 |
| 46 | BUS2 | I/O | TC9236F (IC101) BUS DATA 2 |
| 47 | BUS1 | I/O | TC9236F (IC101) BUS DATA 1 |
| 48 | BUS0 | I/O | TC9236F (IC101) BUS DATA 0 |
| 49 | D8 | I/O | S-RAM (IC502) I/O 8 |
| 50 | D7 | I/O | S-RAM (IC502) I/O 7 |
| 51 | D6 | I/O | S-RAM (IC502) I/O 6 |
| 52 | D5 | I/O | S-RAM (IC502) I/O 5 |
| 53 | D4 | I/O | S-RAM (IC502) I/O 4 |
| 54 | D3 | I/O | S-RAM (IC502) I/O 3 |
| 55 | D2 | I/O | S-RAM (IC502) I/O 2 |
| 56 | D1 | I/O | S-RAM (IC502) I/O 1 |
| 57 | $V_{PP}$ | — | PROM INPUT REGULATOR |
| 58 | $V_{DD}$ | — | REGULATOR +5V |
| 59 | $\overline{\text{CE}}$ | O | S-RAM (IC502) CE |
| 60 | A10 | O | S-RAM (IC502) ADDRESS 10 |
| 61 | A9 | O | S-RAM (IC502) ADDRESS 9 |
| 62 | A8 | O | S-RAM (IC502) ADDRESS 8 |
| 63 | A7 | O | S-RAM (IC502) ADDRESS 7 |
| 64 | A6 | O | S-RAM (IC502) ADDRESS 6 |



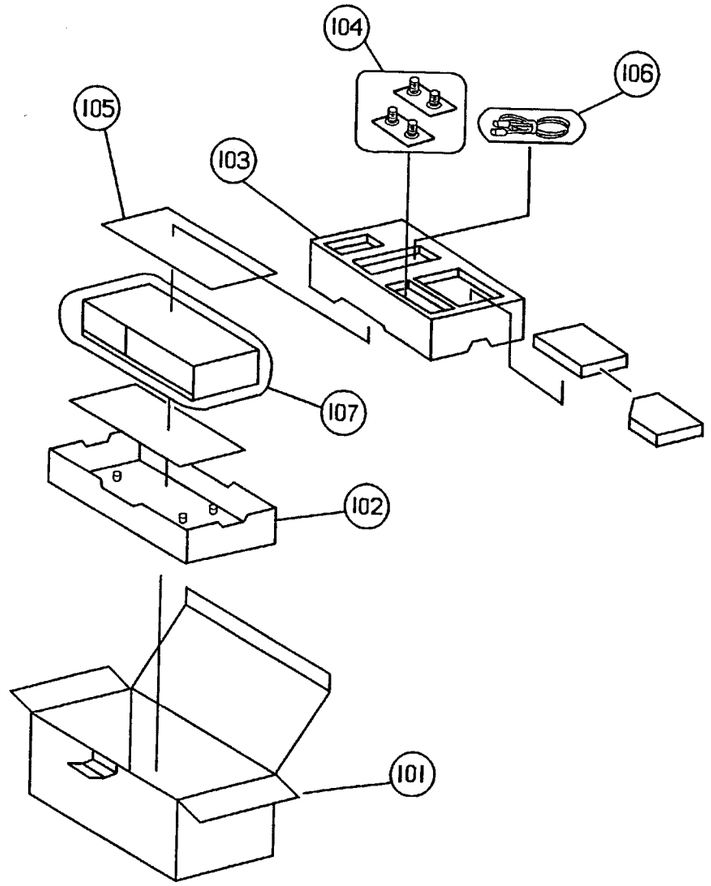
# Packing Assembly Parts List

| Symbol No. | Part No. | Description |
|---|---|---|
| 101 | 56S30003W56 | Carton, Packing (Individual) |
| 102 | 56D22240W01 | Tray, Packing (L) |
| 103 | 56D22240W02 | Tray, Packing (R) |
| 104 | 01V24600W93 | Assy., Kit Installation |
| △ 104-1 | 03D40121T46 | Bolt, Hex. W/Double Washer (M4×6) |
| △ 104-2 | 02B47353F06 | Nut, Hex. (M6) |
| △ 104-3 | 03B90962F03 | Bolt, Hex. Flange (M6×50) |
| △ 104-4 | 02A44071U02 | Nut, Wing (M6) |
| △ 104-5 | 04S40071G22 | Washer, Spring Lock (M6.1) |
| △ 104-6 | 07B22460W01 | Bracket, Side (L) |
| △ 104-7 | 07B22460W02 | Bracket, Side (R) |
| △ 104-8 | 07A13484W02 | Bracket, MTG Base |

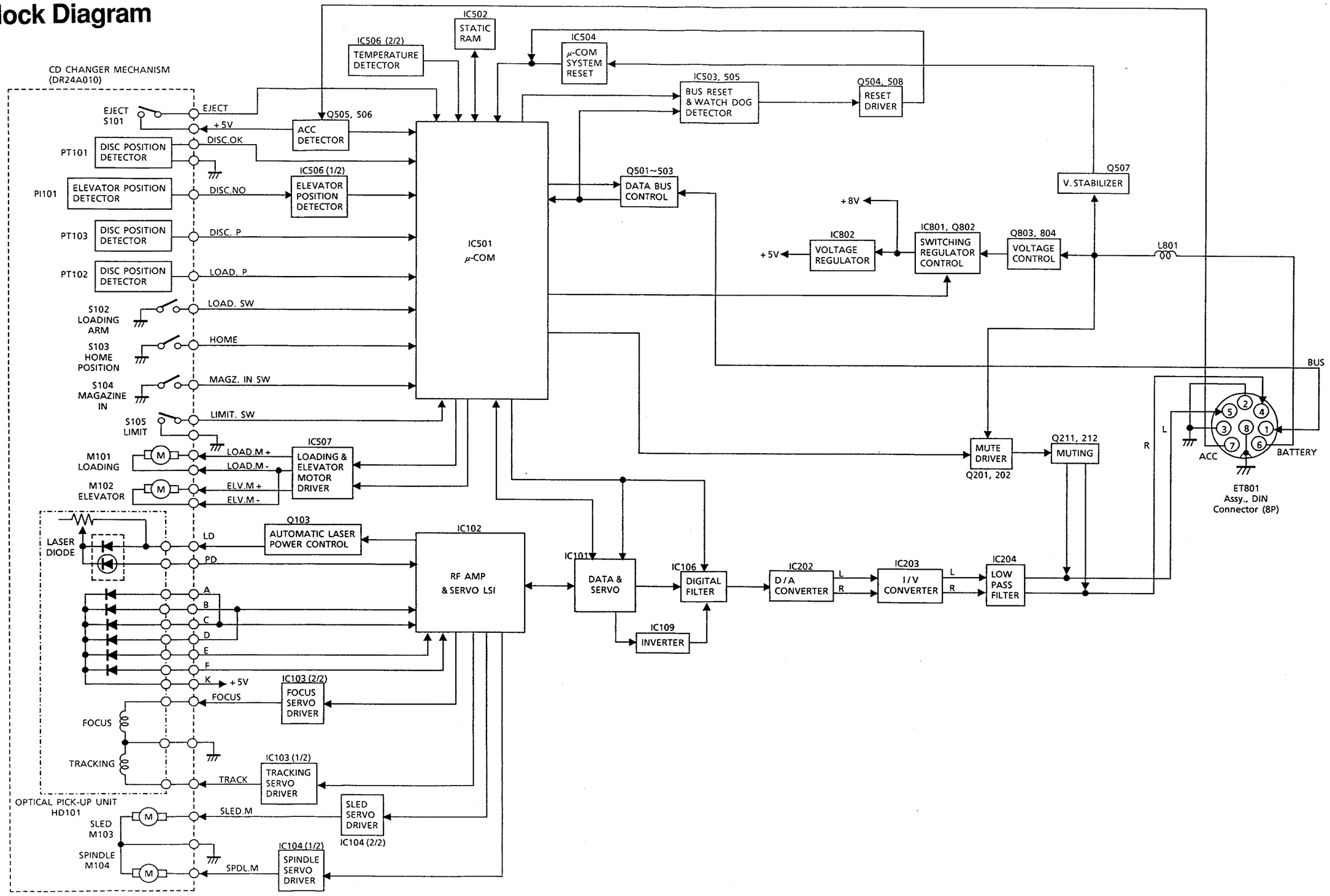
| Symbol No. | Part No. | Description |
|---|---|---|
| ○ 105 | 68P32052W17 | Owner's Manual |
| △ 105 | 68P32052W47 | Owner's Manual |
| ● 105-1 | 68P32052W17 | Owner's Manual |
| ● 105-2 | 68P32052W27 | Owner's Manual |
| 106 | 01T15904W01 | Assy., DIN Connector 5.5m |
| 107 | 56A67299F02 | Sack, Polyethylene |

**Notes :** ○ : For North American Model only, △ : For General Foreign Model only,
● : For Canadian Model only, Others : Common.

# Packing Method View

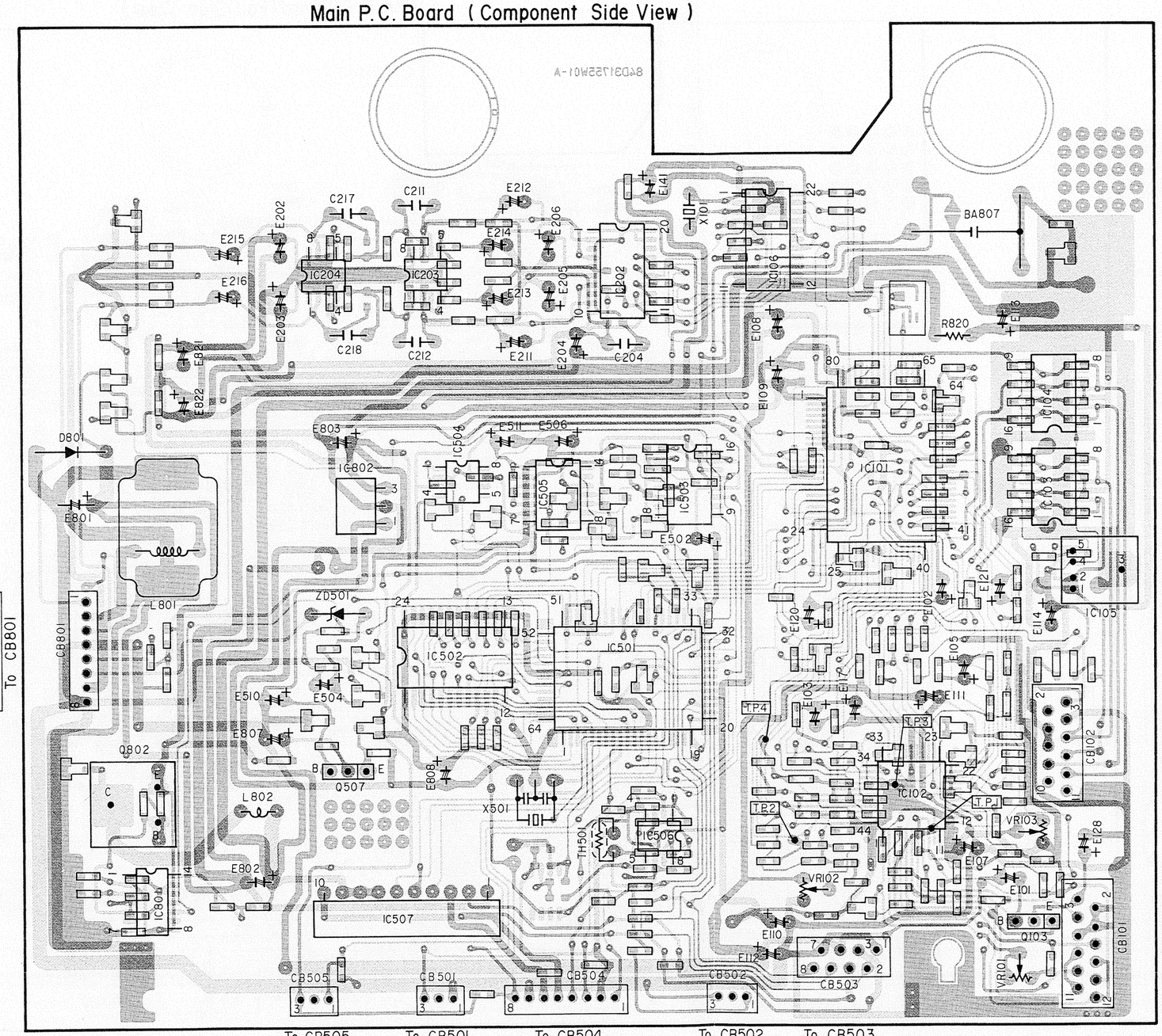


# Block Diagram



# Parts Layout on P. C. Board and Wiring Diagram (1/2)

Main P.C. Board ( Component Side View )




From Connector P. C. Board (CB801)

WHT/RED(1)
WHT(1)
WHT/BLU(1)
WHT/YEL(1)
WHT/RED(2)
WHT(2)
WHT/BLU(2)
WHT/YEL(2)

To CB801

To CB102 — From FPC Actuate P.C.Board

To CB101 — From Optical Pick-Up Unit(HD101)

To CB505 — From Switch P. C. Board (GRN, BLU)

To CB501 — From Magazine Photo P.C.Board (ORG, YEL)

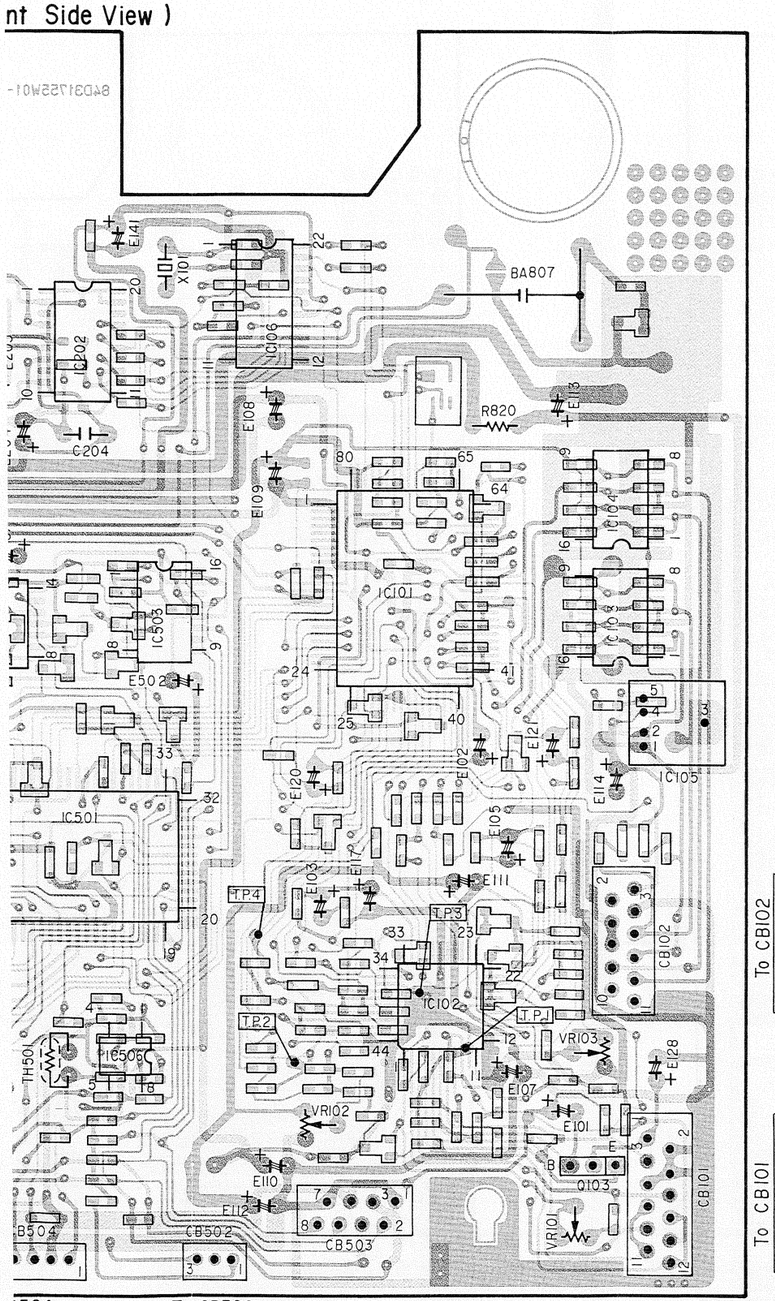
To CB504 — From Interrupt P.C. Board (CW104) (GRY, WHT(1), WHT(2), WHT(3), WHT(4), WHT(5), WHT(6), WHT(7))

To CB502 — From LED P. C . Board (BRN, RED)

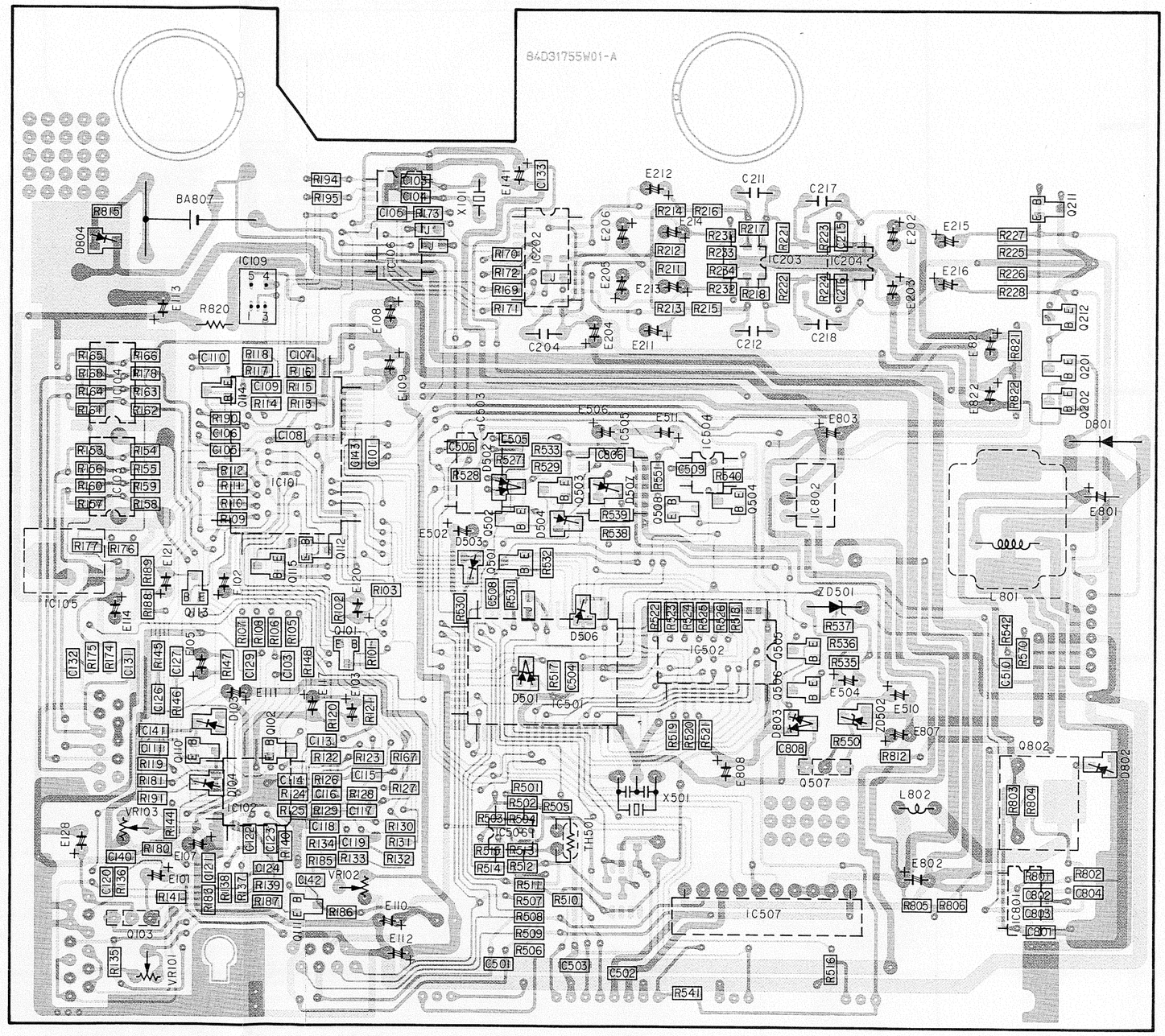
To CB503 — From FPC Elevator P.C.Board

# iagram (1/2)

nt Side View )




Main P.C.Board(Foil Side View)




Orange Pattern : Component Side Pattern
Blue Pattern : Foil Side Pattern

D | E | F | G | H | I | J | K

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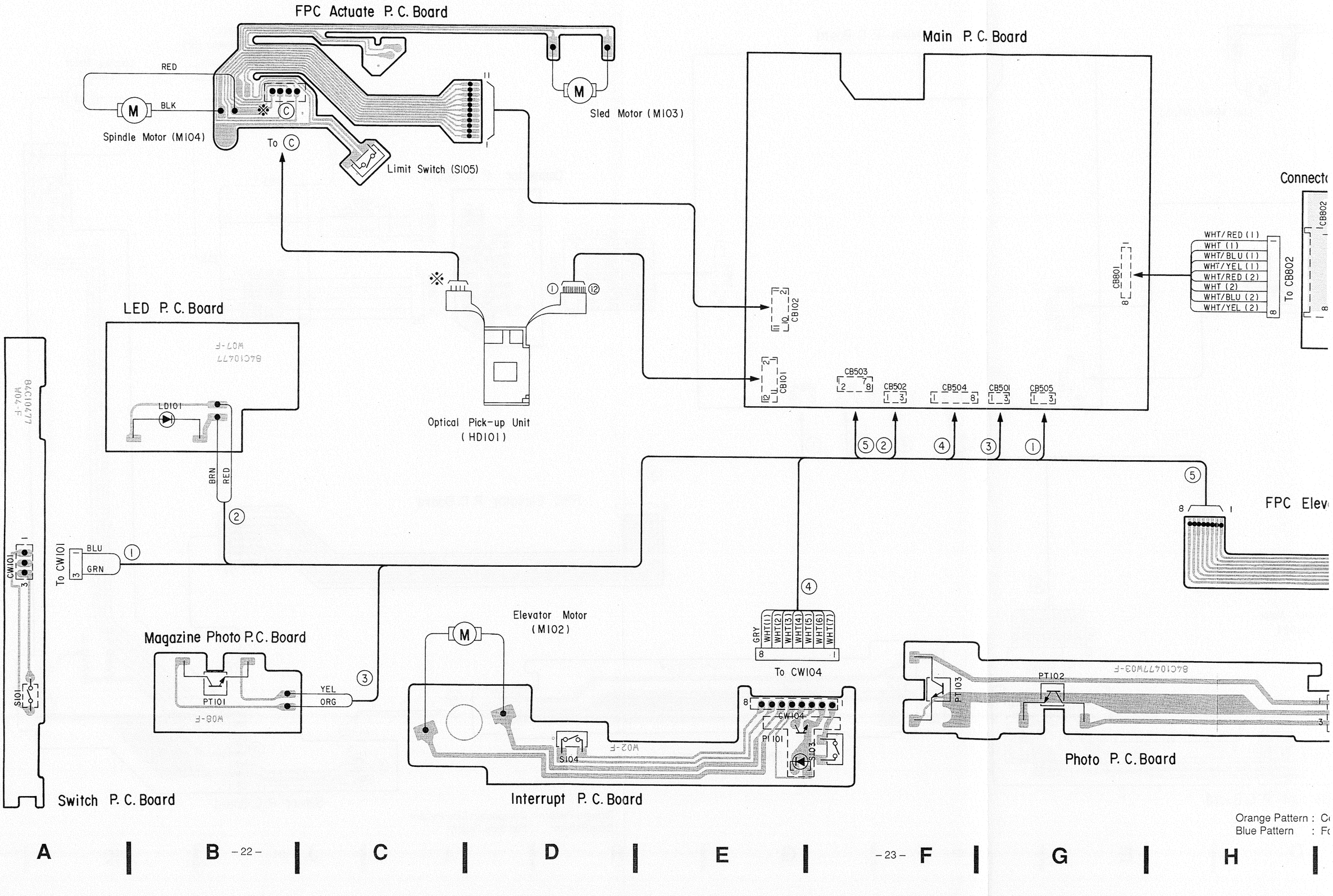
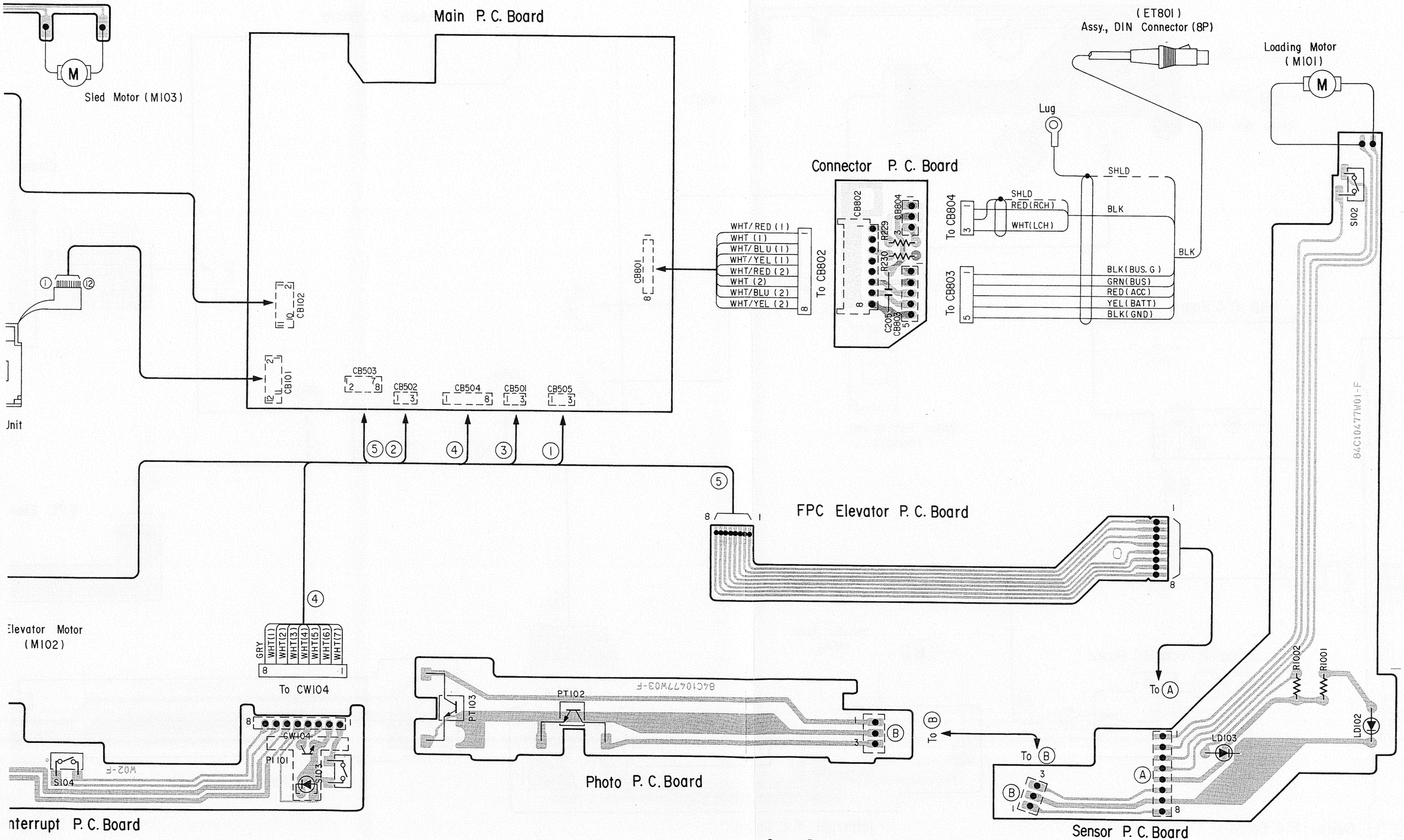
# Parts Layout on P. C. Board and Wiring Diagram (2/2)

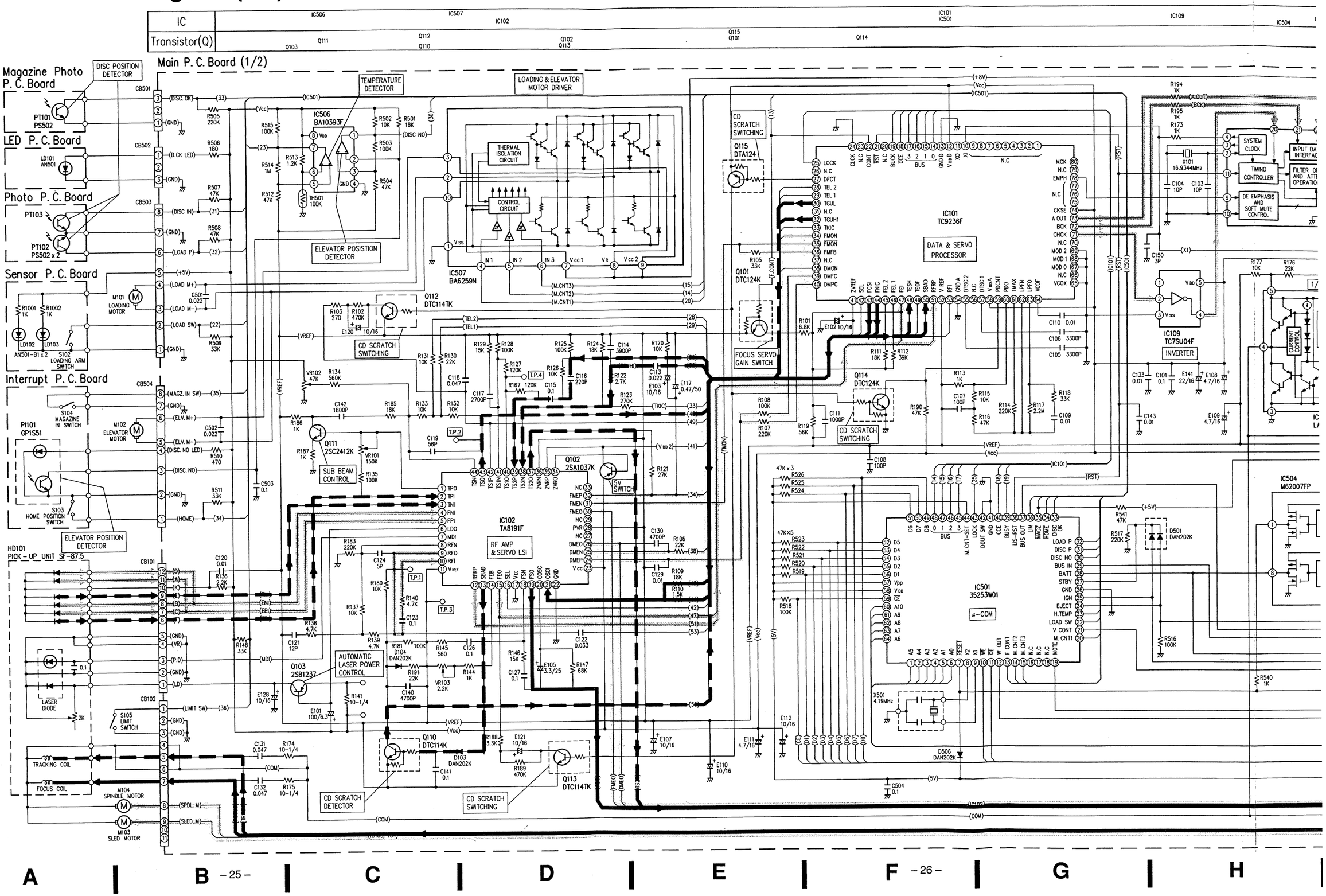
All P.C.Boards viewed from soldered side.



# gram (2/2) All P.C.Boards viewed from soldered side.



# Schematic Diagram (1/2)







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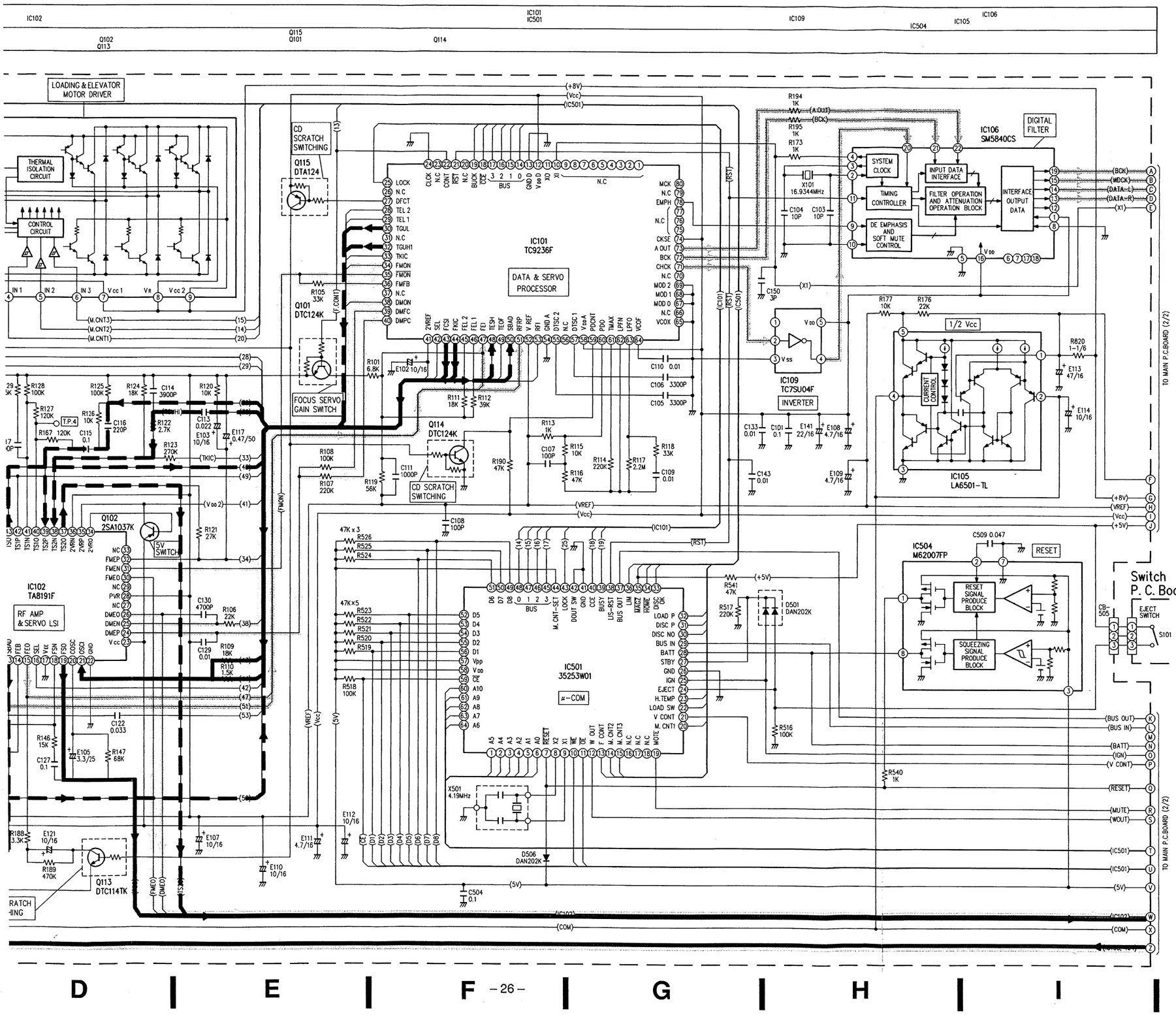


**IC101**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | NC | 17 | PS | 33 | 2.1V | 49 | 2.1V | 65 | 0V |
| 2 | NC | 18 | PS | 34 | 2.1V | 50 | 2.1V | 66 | NC |
| 3 | NC | 19 | PS | 35 | 2.1V | 51 | 2.5V | 67 | 0V |
| 4 | NC | 20 | NC | 36 | 2.1V | 52 | 2.1V | 68 | 0V |
| 5 | NC | 21 | 5V | 37 | NC | 53 | PS | 69 | 0V |
| 6 | NC | 22 | 0V | 38 | 2.1V | 54 | 0V | 70 | NC |
| 7 | NC | 23 | NC | 39 | PS | 55 | 2.5V | 71 | PS |
| 8 | NC | 24 | 0V | 40 | PS | 56 | NC | 72 | PS |
| 9 | NC | 25 | 5V | 41 | 4.2V | 57 | 2.5V | 73 | PS |
| 10 | PS | 26 | 0V | 42 | – | 58 | 5V | 74 | 5V |
| 11 | PS | 27 | 5V | 43 | 2.2V | 59 | 5V | 75 | NC |
| 12 | 5V | 28 | 2.1V | 44 | 2.2V | 60 | PS | 76 | NC |
| 13 | 0V | 29 | 2.1V | 45 | 2.1V | 61 | 2V | 77 | NC |
| 14 | PS | 30 | 2.1V | 46 | 2.1V | 62 | 2.1V | 78 | 0V |
| 15 | PS | 31 | NC | 47 | 2.1V | 63 | 2.2V | 79 | NC |
| 16 | PS | 32 | 2.1V | 48 | 2.1V | 64 | 1.9V | 80 | NC |

**IC102**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 1.7V | 12 | 2.5V | 23 | 5V | 34 | 4.4V |
| 2 | 2.1V | 13 | 2.8V | 24 | 2.1V | 35 | 4.2V |
| 3 | 2.1V | 14 | 2.1V | 25 | 2.1V | 36 | 2.1V |
| 4 | 2.1V | 15 | 2.1V | 26 | 2.4V | 37 | 2.1V |
| 5 | 2.1V | 16 | – | 27 | NC | 38 | 2.1V |
| 6 | 3.8V | 17 | 0V | 28 | 2.1V | 39 | 2.1V |
| 7 | 0.2V | 18 | 2.1V | 29 | NC | 40 | 2.1V |
| 8 | 2.1V | 19 | 2V | 30 | 2V | 41 | 2.1V |
| 9 | PS | 20 | 2V | 31 | 2.1V | 42 | 2.1V |
| 10 | PS | 21 | 2.4V | 32 | 2.1V | 43 | 2.1V |
| 11 | 2.1V | 22 | 0V | 33 | NC | 44 | 2.1V |

**IC501**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | – | 17 | NC | 33 | 1V | 49 | 5V |
| 2 | – | 18 | NC | 34 | 0V | 50 | 5V |
| 3 | – | 19 | 0V | 35 | 0V | 51 | 5V |
| 4 | – | 20 | 5V | 36 | 5V | 52 | 5V |
| 5 | – | 21 | 5V | 37 | PS | 53 | 5V |
| 6 | – | 22 | 0V | 38 | 5V | 54 | 5V |
| 7 | 5V | 23 | 0V | 39 | PS | 55 | 5V |
| 8 | PS | 24 | 0V | 40 | PS | 56 | 5V |
| 9 | PS | 25 | 5V | 41 | 0V | 57 | 5V |
| 10 | 5V | 26 | 0V | 42 | 0V | 58 | 5V |
| 11 | 5V | 27 | 5V | 43 | 5V | 59 | 0V |
| 12 | PS | 28 | 5V | 44 | 5V | 60 | – |
| 13 | 0V | 29 | PS | 45 | PS | 61 | – |
| 14 | 5V | 30 | 0V | 46 | PS | 62 | – |
| 15 | 5V | 31 | 4V | 47 | PS | 63 | – |
| 16 | NC | 32 | 1V | 48 | PS | 64 | – |

**IC105**

| | |
|---|---|
| 1 | 8V |
| 2 | 4V |
| 3 | 0V |
| 4 | 4V |
| 5 | 4V |

**IC106**

| | | | |
|---|---|---|---|
| 1 | 5V | 12 | NC |
| 2 | PS | 13 | PS |
| 3 | PS | 14 | PS |
| 4 | PS | 15 | PS |
| 5 | 0V | 16 | 5V |
| 6 | NC | 17 | NC |
| 7 | NC | 18 | NC |
| 8 | 0V | 19 | PS |
| 9 | 5V | 20 | PS |
| 10 | 0V | 21 | PS |
| 11 | 0V | 22 | PS |

**IC109**

| | |
|---|---|
| 1 | NC |
| 2 | PS |
| 3 | 0V |
| 4 | PS |
| 5 | 5V |

**IC504**

| | |
|---|---|
| 1 | 5V |
| 2 | 4.9V |
| 3 | 5V |
| 4 | NC |
| 5 | NC |
| 6 | NC |
| 7 | 0V |
| 8 | 5V |

**IC506**

| | |
|---|---|
| 1 | 0V |
| 2 | 5V |
| 3 | 1.4V |
| 4 | 0V |
| 5 | 2V |
| 6 | 4.9V |
| 7 | 0V |
| 8 | 5V |

**IC507**

| | |
|---|---|
| 1 | 0V |
| 2 | 0V |
| 3 | 0V |
| 4 | 5V |
| 5 | 5V |
| 6 | 5V |
| 7 | 8V |
| 8 | 8V |
| 9 | 8V |
| 10 | 0V |

| | E | C | B |
|---|---|---|---|
| Q101 | 2.1V | 2.1V | 0V |
| Q102 | 5V | 4.2V | 4.4V |
| Q103 | 4.5V | 1.8V | 3.8V |
| Q110 | 2.1V | 2.5V | 2.4V |
| Q111 | 1.1V | 1.1V | 1.8V |
| Q112 | 2.1V | 2.1V | 0V |
| Q113 | 2.1V | 2.1V | 0V |
| Q114 | 0V | 5V | 0V |
| Q115 | 5V | 0V | 5V |

(Measuring Conditions)

- Power supply voltage : DC14.4V
- Measuring meter : Digital multi volt meter
- Measuring point reference : Between ground
- Measuring condition : No signal input

(端子電圧測定条件)

- 電源電圧 : DC14.4V
- 測定機器 : デジタルマルチ ボルトメーター
- 測定基準 : 対 アース間
- 測定条件 : 無信号入力

CD Signal Line(Digital)
Focus Error Signal Line
Tracking Error Signal Line
Spindle Drive Signal Line
Sled Drive Signal Line

**NOTES:**

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1{,}000{,}000}$

D E F –26– G H I J –27– K

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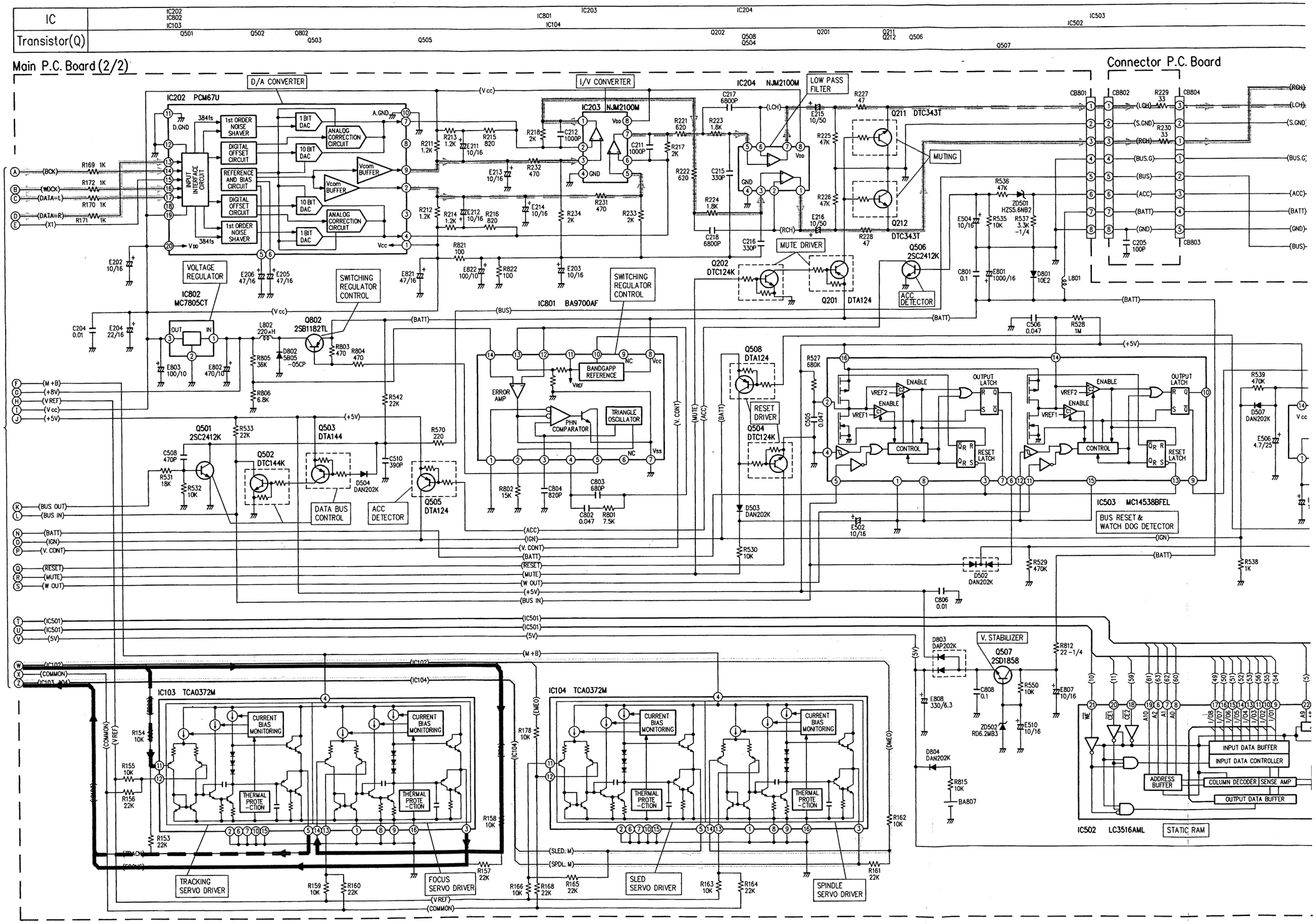
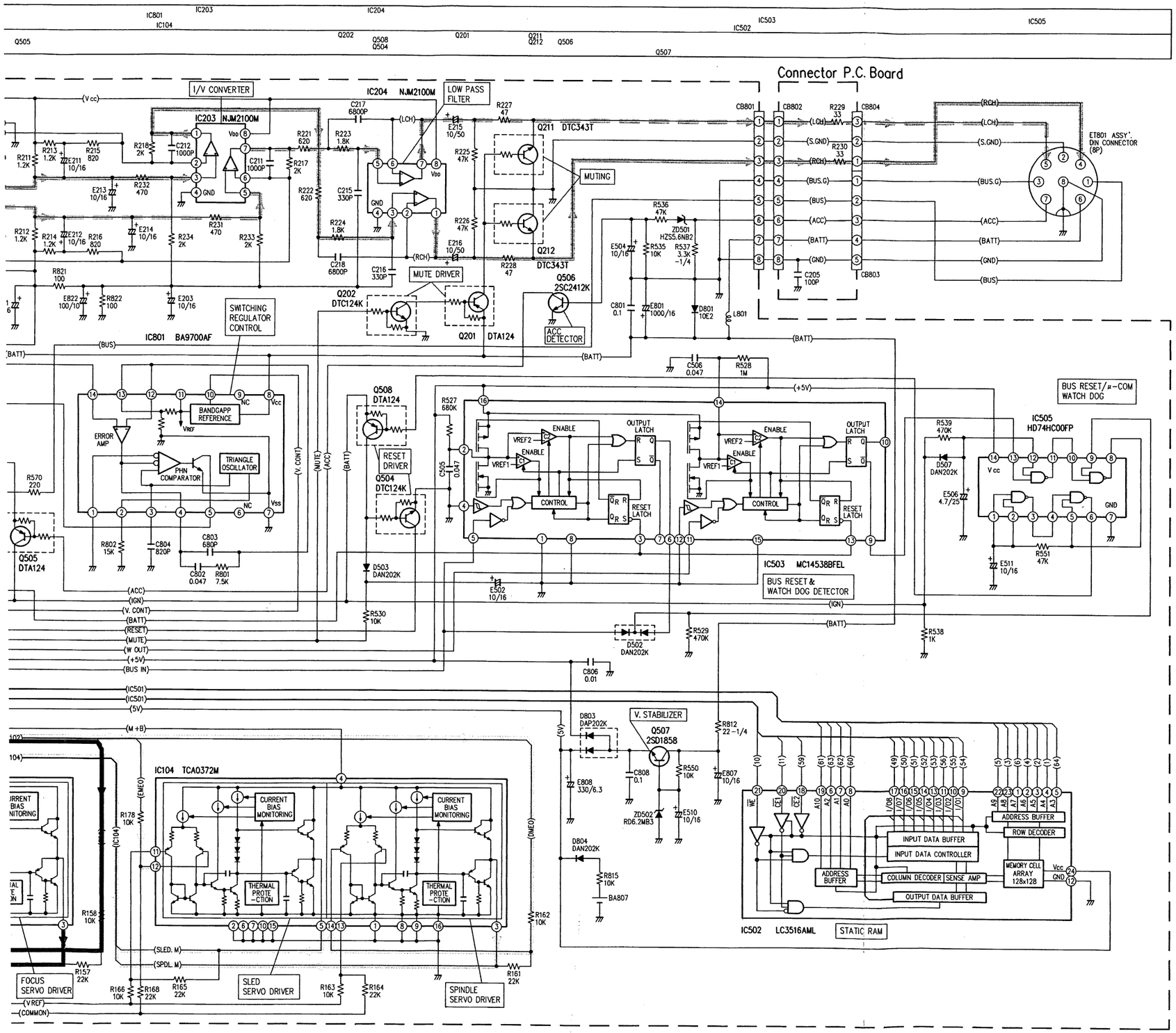
# Schematic Diagram (2/2)






**IC103**

| | | | |
|---|---|---|---|
| 1 | 0V | 9 | 0V |
| 2 | 0V | 10 | 0V |
| 3 | – | 11 | 3.7V |
| 4 | 8V | 12 | 3.7V |
| 5 | – | 13 | 3.7V |
| 6 | 0V | 14 | 3.7V |
| 7 | 0V | 15 | 0V |
| 8 | 0V | 16 | 0V |

**IC104**

| | | | |
|---|---|---|---|
| 1 | 0V | 9 | 0V |
| 2 | 0V | 10 | 0V |
| 3 | – | 11 | 3.7V |
| 4 | 8V | 12 | 3.7V |
| 5 | – | 13 | 3.7V |
| 6 | 0V | 14 | 3.7V |
| 7 | 0V | 15 | 0V |
| 8 | 0V | 16 | 0V |

**IC202**

| | | | |
|---|---|---|---|
| 1 | 5V | 11 | 0V |
| 2 | 3.6V | 12 | 0V |
| 3 | NC | 13 | PS |
| 4 | 3.4V | 14 | PS |
| 5 | 3.2V | 15 | PS |
| 6 | 3.2V | 16 | PS |
| 7 | 3.4V | 17 | PS |
| 8 | NC | 18 | NC |
| 9 | 3.6V | 19 | 5V |
| 10 | 0V | 20 | 5V |

**IC203**

| | | | |
|---|---|---|---|
| 1 | 2.8V | 5 | 3.4V |
| 2 | 3.4V | 6 | 3.4V |
| 3 | 3.4V | 7 | 2.8V |
| 4 | 0V | 8 | 5V |

**IC204**

| | | | |
|---|---|---|---|
| 1 | – | 5 | – |
| 2 | – | 6 | – |
| 3 | – | 7 | – |
| 4 | 0V | 8 | 5V |

**IC502**

| | | | |
|---|---|---|---|
| 1 | – | 13 | 5V |
| 2 | – | 14 | 5V |
| 3 | – | 15 | 5V |
| 4 | – | 16 | 5V |
| 5 | – | 17 | 5V |
| 6 | – | 18 | 0V |
| 7 | – | 19 | – |
| 8 | – | 20 | 5V |
| 9 | 5V | 21 | 5V |
| 10 | 5V | 22 | – |
| 11 | 5V | 23 | – |
| 12 | 0V | 24 | 5V |

**IC503**

| | | | |
|---|---|---|---|
| 1 | 0V | 9 | 0V |
| 2 | PS | 10 | NC |
| 3 | 5V | 11 | PS |
| 4 | 0V | 12 | 0V |
| 5 | PS | 13 | 5V |
| 6 | PS | 14 | 0V |
| 7 | NC | 15 | 0V |
| 8 | 0V | 16 | 5V |

**IC505**

| | | | |
|---|---|---|---|
| 1 | 0V | 8 | 0V |
| 2 | 0V | 9 | 4.6V |
| 3 | 5V | 10 | 5V |
| 4 | 5V | 11 | 5V |
| 5 | 0V | 12 | 5V |
| 6 | 5V | 13 | 0V |
| 7 | 0V | 14 | 5V |

**IC801**

| | | | |
|---|---|---|---|
| 1 | 0V | 8 | 14V |
| 2 | 0.9V | 9 | NC |
| 3 | PS | 10 | 5V |
| 4 | 1.2V | 11 | NC |
| 5 | PS | 12 | 1.2V |
| 6 | NC | 13 | 1.2V |
| 7 | 0V | 14 | 1.2V |

**IC802**

| | |
|---|---|
| 1 | 8V |
| 2 | 0V |
| 3 | 5V |

| | E | C | B |
|---|---|---|---|
| Q201 | 14V | 0V | 14V |
| Q202 | 0V | 14V | 0V |
| Q211 | – | 0V | 0V |
| Q212 | – | 0V | 0V |
| Q501 | 0V | PS | PS |
| Q502 | 0V | PS | PS |
| Q503 | 5V | PS | PS |
| Q504 | 0V | 5V | 0V |
| Q505 | 5V | 5V | 0V |
| Q506 | 0V | 0V | 0.6V |
| Q507 | 5.8V | 14V | 6.4V |
| Q508 | 5V | 0V | 5V |
| Q802 | 14V | PS | – |

(Measuring Conditions)

- Power supply voltage : DC14.4V
- Measuring meter : Digital multi volt meter
- Measuring point reference : Between ground
- Measuring condition : No signal input

(端子電圧測定条件)

- 電源電圧 : DC14.4V
- 測定機器 : デジタルマルチ ボルトメーター
- 測定基準 : 対アース間
- 測定条件 : 無信号入力

CD Signal Line(Digital)
L-ch Signal Line
R-ch Signal Line
Focus Error Signal Line
Tracking Error Signal Line
Spindle Drive Signal Line
Sled Drive Signal Line

**NOTES:**

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1{,}000{,}000}$

# Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor : $\mu$F = microfarads, pF = picofarads

### Abbreviations

| | | | |
|---|---|---|---|
| RES. = | Resistor | CAP. = | Capacitor |
| C.F. = | Carbon Film | ELY. = | Electrolytic |
| M.F. = | Metal Film | CER. = | Ceramic |
| M.O. = | Metal Oxide Film | MYL. = | Mylar |
| M.P. = | Metal Plate | TAN. = | Tantalum |
| TR. = | Transistor | POLY. = | Polystyrol |
| TRANS. = | Transformer | PP. = | Polypropylene |
| CP. = | Chip | PLT. = | Polyethylene |
| | | PF. = | Polyester Film |

## Main P. C. Board

### IC's

| Symbol No. | Part No. | Description |
|---|---|---|
| IC101 | 51T25985W01 | TC9236F |
| IC102 | 51T25984W01 | TA8191F |
| IC103 | 51T15264W01 | TCA0372M |
| IC104 | 51T15264W01 | TCA0372M |
| IC105 | 51T90889F03 | LA6501-TL |
| IC106 | 51T35105W02 | SM5840CS |
| IC109 | 51T35229W01 | TC7SU04F |
| IC202 | 51T35409W03 | PCM67U |
| IC203 | 51T16025W01 | NJM2100M |
| IC204 | 51T16025W01 | NJM2100M |
| IC501 | 51T35253W01 | 35253W01 |
| or | 51T15590W40 | 15590W40 |
| IC502 | 51T84723F02 | LC3516AML |
| or | 51T90640F01 | CXK5816M |
| IC503 | 51T25370W01 | MC14538BFEL |
| IC504 | 51T35308W01 | M62007FP |
| IC505 | 51T90277F10 | HD74HC00FP |
| or | 51T25904W03 | MC74HC00AFL |
| IC506 | 51T73285F01 | BA10393F |
| IC507 | 51T35435W01 | BA6259N |
| IC801 | 51T35436W02 | BA9700AF |
| IC802 | 51T94884F01 | MC7805CT |
| or | 51T62953F01 | TA78005AP |
| or | 51T35279W01 | TA7805S |

### Transistors

| Symbol No. | Part No. | Description |
|---|---|---|
| Q101 | 48T62967F03 | CP., DTC124K |
| Q102 | 48T63420F01 | CP., 2SA1037K |
| Q103 | 48T83417F03 | 2SB1237 |
| Q110 | 48T62967F02 | CP., DTC114K |
| Q111 | 48T63417F01 | CP., 2SC2412K |
| Q112 | 48T62967F09 | CP., DTC114TK |
| Q113 | 48T62967F09 | CP., DTC114TK |
| Q114 | 48T62967F03 | CP., DTC124K |
| Q115 | 48T62966F03 | CP., DTA124 |
| Q201 | 48T62966F03 | CP., DTA124 |
| Q202 | 48T62967F03 | CP., DTC124K |
| Q211 | 48T62967F33 | CP., DTC343T |
| Q212 | 48T62967F33 | CP., DTC343T |
| Q501 | 48T63417F01 | CP., 2SC2412K |
| Q502 | 48T62967F04 | CP., DTC144K |
| Q503 | 48T62966F04 | CP., DTA144 |
| Q504 | 48T62967F03 | CP., DTC124K |
| Q505 | 48T62966F03 | CP., DTA124 |
| Q506 | 48T63417F01 | CP., 2SC2412K |
| Q507 | 48T83415F03 | 2SD1858 |
| Q508 | 48T62966F03 | CP., DTA124 |
| Q802 | 48T35437W01 | 2SB1182TL |

### Diodes

| Symbol No. | Part No. | Description |
|---|---|---|
| D103 | 48T63462F01 | CP., DAN202K |
| D104 | 48T63462F01 | CP., DAN202K |
| D501 | 48T63462F01 | CP., DAN202K |
| D502 | 48T63462F01 | CP., DAN202K |
| D503 | 48T63462F01 | CP., DAN202K |
| D504 | 48T63462F01 | CP., DAN202K |
| D506 | 48T63462F01 | CP., DAN202K |
| D507 | 48T63462F01 | CP., DAN202K |
| D801 | 48C40235G02 | 10E2 |
| D802 | 48T15702W01 | CP., SB05-05CP |
| D803 | 48T63463F01 | CP., DAP202K |
| D804 | 48T63462F01 | CP., DAN202K |
| ZD501 | 48T90517F27 | Zener, HZS5.6NB2 |
| ZD502 | 48T62934F26 | Zener, CP. RD6.2MB3 |

### Thermistor / Coils

| Symbol No. | Part No. | Description |
|---|---|---|
| TH501 | 48T93439F06 | 100K ohm |
| L801 | 25T52199F01 | Coil, Choke |
| L802 | 24T16271W13 | Coil, RCR875D 220$\mu$H |

| Symbol No. | Part No. | Description |
|---|---|---|
| **Crystals** | | |
| X101 | 91T25773W92 | 16.9344MHz |
| X501 | 91T15285W01 | CER. Lock, 4.19MHz |
| **Capacitors** | | |
| C101 | 08S53332F57 | CP., 0.1μF |
| E101 | 23S61523F08 | ELY., 100μF/6.3V |
| E102 | 23S61523F12 | ELY., 10μF/16V |
| C103 | 08S65128F12 | CP., 10pF |
| E103 | 23S61523F12 | ELY., 10μF/16V |
| C104 | 08S65128F12 | CP., 10pF |
| C105 | 08S65128F63 | CP., 3300pF |
| E105 | 23S61523F16 | ELY., 3.3μF/25V |
| C106 | 08S65128F63 | CP., 3300pF |
| C107 | 08S65128F35 | CP., 100pF |
| E107 | 23T74437F32 | TAN., 10μF/16V |
| C108 | 08S65128F35 | CP., 100pF |
| E108 | 23T74437F30 | TAN., 4.7μF/16V |
| C109 | 08S65128F69 | CP., 0.01μF |
| E109 | 23T74437F30 | TAN., 4.7μF/16V |
| C110 | 08S65128F69 | CP., 0.01μF |
| E110 | 23T74437F32 | TAN., 10μF/16V |
| C111 | 08S65128F57 | CP., 1000pF |
| E111 | 23T74437F30 | TAN., 4.7μF/16V |
| E112 | 23T74437F32 | TAN., 10μF/16V |
| C113 | 08T15399W01 | CP., 0.022μF |
| E113 | 23T25149W12 | ELY., 47μF/16V |
| C114 | 08S65128F64 | CP., 3900pF |
| E114 | 23T25149W09 | ELY., 10μF/16V |
| C115 | 08T15807W05 | CP., 0.1μF |
| C116 | 08S65128F43 | CP., 220pF |
| C117 | 08S65128F62 | CP., 2700pF |
| E117 | 23S61523F28 | ELY., 0.47μF/50V |
| C118 | 08T15399W03 | CP., 0.047μF |
| C119 | 08S65128F29 | CP., 56pF |
| C120 | 08S65128F69 | CP., 0.01μF |
| E120 | 23S61523F12 | ELY., 10μF/16V |
| C121 | 08S65128F13 | CP., 12pF |
| E121 | 23S61523F12 | ELY., 10μF/16V |
| C122 | 08T15399W02 | CP., 0.033μF |
| C123 | 08T15807W05 | CP., 0.1μF |
| C124 | 08S65128F07 | CP., 5pF |
| C126 | 08T15807W05 | CP., 0.1μF |
| C127 | 08T15807W05 | CP., 0.1μF |
| E128 | 23T74437F32 | TAN., 10μF/16V |

| Symbol No. | Part No. | Description |
|---|---|---|
| C129 | 08S65128F69 | CP., 0.01μF |
| C130 | 08S65128F65 | CP., 4700pF |
| C131 | 08T15399W03 | CP., 0.047μF |
| C132 | 08T15399W03 | CP., 0.047μF |
| C133 | 08S65128F69 | CP., 0.01μF |
| C140 | 08S65128F65 | CP., 4700pF |
| C141 | 08T15807W05 | CP., 0.1μF |
| E141 | 23S61523F13 | ELY., 22μF/16V |
| C142 | 08S65128F60 | CP., 1800pF |
| C143 | 08S65128F69 | CP., 0.01μF |
| C150 | 08S65128F05 | CP., 3pF |
| E202 | 23T25149W09 | ELY., 10μF/16V |
| E203 | 23T25149W09 | ELY., 10μF/16V |
| C204 | 08T35388W17 | TF, 0.01μF |
| E204 | 23T25149W10 | ELY., 22μF/16V |
| E205 | 23T25149W12 | ELY., 47μF/16V |
| E206 | 23T25149W12 | ELY., 47μF/16V |
| C211 | 08T00151L13 | PP., 1000pF |
| E211 | 23T25149W09 | ELY., 10μF/16V |
| C212 | 08T00151L13 | PP., 1000pF |
| E212 | 23T25149W09 | ELY., 10μF/16V |
| E213 | 23T25149W09 | ELY., 10μF/16V |
| E214 | 23T25149W09 | ELY., 10μF/16V |
| C215 | 08S82122F49 | CP., 330pF |
| E215 | 23T00181L44 | ELY., 10μF/50V |
| C216 | 08S82122F49 | CP., 330pF |
| E216 | 23T00181L44 | ELY., 10μF/50V |
| C217 | 08T35388W15 | TF, 6800pF |
| C218 | 08T35388W15 | TF, 6800pF |
| C501 | 08T15399W01 | CP., 0.022μF |
| C502 | 08T15399W01 | CP., 0.022μF |
| E502 | 23S61523F12 | ELY., 10μF/16V |
| C503 | 08T15807W05 | CP., 0.1μF |
| C504 | 08S53332F57 | CP., 0.1μF |
| E504 | 23S61523F12 | ELY., 10μF/16V |
| C505 | 08T15399W03 | CP., 0.047μF |
| C506 | 08T15399W03 | CP., 0.047μF |
| E506 | 23S61523F17 | ELY., 4.7μF/25V |
| C508 | 08S65128F51 | CP., 470pF |
| C509 | 08T15399W03 | CP., 0.047μF |
| C510 | 08S65128F49 | CP., 390pF |
| E510 | 23S61523F12 | ELY., 10μF/16V |
| E511 | 23S61523F12 | ELY., 10μF/16V |
| C801 | 08S53332F57 | CP., 0.1μF |
| E801 | 23T35505W01 | ELY., 1000μF/16V |
| C802 | 08T15399W03 | CP., 0.047μF |
| E802 | 23T00134L20 | ELY., 470μF/10V |
| C803 | 08S65128F55 | CP., 680pF |
| E803 | 23T25149W13 | ELY., 100μF/10V |
| C804 | 08S82122F59 | CP., 820pF |
| C806 | 08S65128F69 | CP., 0.01μF |
| E807 | 23S61523F12 | ELY., 10μF/16V |

| Symbol No. | Part No. | Description |
|---|---|---|
| C808 | 08S53332F57 | CP., 0.1μF |
| E808 | 23S92017F02 | ELY., 330μF/6.3V |
| E821 | 23T25149W12 | ELY., 47μF/16V |
| E822 | 23T25149W13 | ELY., 100μF/10V |
| **Resistors (All resistors are chip 1/10W ± 5% unless otherwise noted.)** | | |
| R101 | 06S64995F73 | 6.8K ohm |
| R102 | 06S64996F18 | 470K ohm |
| R103 | 06S64995F39 | 270 ohm |
| R105 | 06S64995F89 | 33K ohm |
| R106 | 06S64995F85 | 22K ohm |
| R107 | 06S64996F10 | 220K ohm |
| R108 | 06S64996F02 | 100K ohm |
| R109 | 06S64995F83 | 18K ohm |
| R110 | 06S64995F57 | 1.5K ohm |
| R111 | 06S64995F83 | 18K ohm |
| R112 | 06S64995F91 | 39K ohm |
| R113 | 06S64995F53 | 1K ohm |
| R114 | 06S64996F10 | 220K ohm |
| R115 | 06S64995F77 | 10K ohm |
| R116 | 06S64995F93 | 47K ohm |
| R117 | 06S64996F30 | 2.2M ohm |
| R118 | 06S64995F89 | 33K ohm |
| R119 | 06S64995F95 | 56K ohm |
| R120 | 06S64995F77 | 10K ohm |
| R121 | 06S64995F87 | 27K ohm |
| R122 | 06S64995F63 | 2.7K ohm |
| R123 | 06S64996F12 | 270K ohm |
| R124 | 06S64995F83 | 18K ohm |
| R125 | 06S64996F02 | 100K ohm |
| R126 | 06S64995F77 | 10K ohm |
| R127 | 06S64996F04 | 120K ohm |
| R128 | 06S64996F02 | 100K ohm |
| R129 | 06S64995F81 | 15K ohm |
| R130 | 06S64995F85 | 22K ohm |
| R131 | 06S64995F77 | 10K ohm |
| R132 | 06S64995F77 | 10K ohm |
| R133 | 06S64995F77 | 10K ohm |
| R134 | 06S64996F20 | 560K ohm |
| R135 | 06S64996F02 | 100K ohm |
| R136 | 06S64995F61 | 2.2K ohm |
| R137 | 06S64995F77 | 10K ohm |
| R138 | 06S64995F69 | 4.7K ohm |
| R139 | 06S64995F69 | 4.7K ohm |
| R140 | 06S64995F69 | 4.7K ohm |
| R141 | 06T70072F05 | 10 ohm 1/4W |

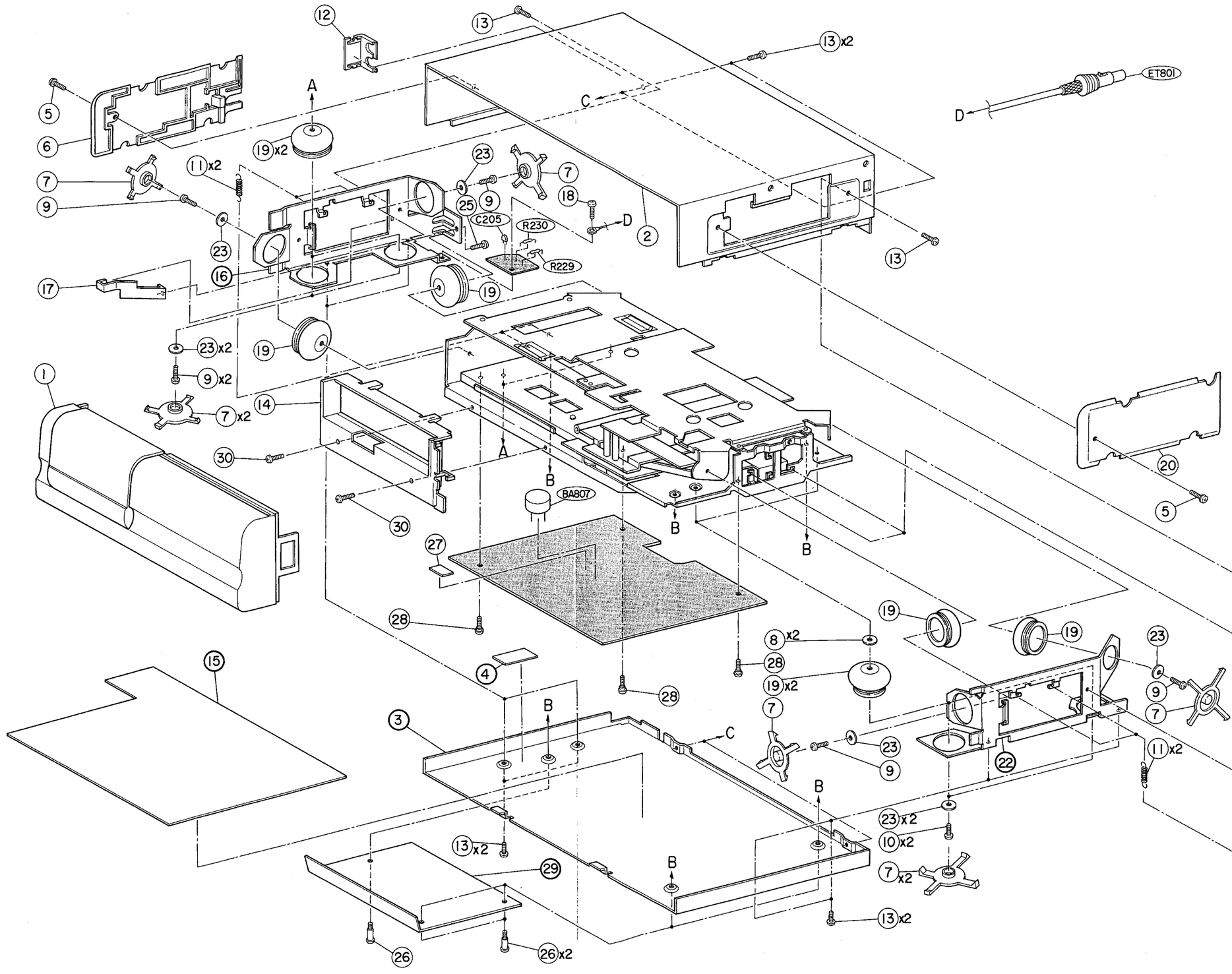
| Symbol No. | Part No. | Description |
|---|---|---|
| R144 | 06S64995F53 | 1K ohm |
| R145 | 06S64995F47 | 560 ohm |
| R146 | 06S64995F81 | 15K ohm |
| R147 | 06S64995F97 | 68K ohm |
| R148 | 06S64995F89 | 33K ohm |
| R153 | 06S64995F85 | 22K ohm |
| R154 | 06S64995F77 | 10K ohm |
| R155 | 06S64995F77 | 10K ohm |
| R156 | 06S64995F85 | 22K ohm |
| R157 | 06S64995F85 | 22K ohm |
| R158 | 06S64995F77 | 10K ohm |
| R159 | 06S64995F77 | 10K ohm |
| R160 | 06S64995F85 | 22K ohm |
| R161 | 06S64995F85 | 22K ohm |
| R162 | 06S64995F77 | 10K ohm |
| R163 | 06S64995F77 | 10K ohm |
| R164 | 06S64995F85 | 22K ohm |
| R165 | 06S64995F85 | 22K ohm |
| R166 | 06S64995F77 | 10K ohm |
| R167 | 06S64996F04 | 120K ohm |
| R168 | 06S64995F85 | 22K ohm |
| R169 | 06S64995F53 | 1K ohm |
| R170 | 06S64995F53 | 1K ohm |
| R171 | 06S64995F53 | 1K ohm |
| R172 | 06S64995F53 | 1K ohm |
| R173 | 06S64995F53 | 1K ohm |
| R174 | 06T70072F05 | 10 ohm 1/4W |
| R175 | 06T70072F05 | 10 ohm 1/4W |
| R176 | 06S64995F85 | 22K ohm |
| R177 | 06S64995F77 | 10K ohm |
| R178 | 06S64995F77 | 10K ohm |
| R180 | 06S64995F77 | 10K ohm |
| R181 | 06S64996F02 | 100K ohm |
| R183 | 06S64996F10 | 220K ohm |
| R185 | 06S64995F83 | 18K ohm |
| R186 | 06S64995F53 | 1K ohm |
| R187 | 06S64995F53 | 1K ohm |
| R188 | 06S64995F65 | 3.3K ohm |
| R189 | 06S64996F18 | 470K ohm |
| R190 | 06S64995F93 | 47K ohm |
| R191 | 06S64995F85 | 22K ohm |
| R194 | 06S64995F53 | 1K ohm |
| R195 | 06S64995F53 | 1K ohm |
| R211 | 06S64995F55 | 1.2K ohm |
| R212 | 06S64995F55 | 1.2K ohm |
| R213 | 06S64995F55 | 1.2K ohm |
| R214 | 06S64995F55 | 1.2K ohm |
| R215 | 06S64995F51 | 820 ohm |
| R216 | 06S64995F51 | 820 ohm |
| R217 | 06S64995F60 | 2K ohm |
| R218 | 06S64995F60 | 2K ohm |
| R221 | 06S64995F48 | 620 ohm |



| Symbol No. | Part No. | Description |
|---|---|---|
| R222 | 06S64995F48 | 620 ohm |
| R223 | 06S64995F59 | 1.8K ohm |
| R224 | 06S64995F59 | 1.8K ohm |
| R225 | 06S64995F93 | 47K ohm |
| R226 | 06S64995F93 | 47K ohm |
| R227 | 06S64995F21 | 47 ohm |
| R228 | 06S64995F21 | 47 ohm |
| R231 | 06S64995F45 | 470 ohm |
| R232 | 06S64995F45 | 470 ohm |
| R233 | 06S64995F60 | 2K ohm |
| R234 | 06S64995F60 | 2K ohm |
| R501 | 06S64995F83 | 18K ohm |
| R502 | 06S64995F77 | 10K ohm |
| R503 | 06S64996F02 | 100K ohm |
| R504 | 06S64995F93 | 47K ohm |
| R505 | 06S64996F10 | 220K ohm |
| R506 | 06S64995F35 | 180 ohm |
| R507 | 06S64995F93 | 47K ohm |
| R508 | 06S64995F93 | 47K ohm |
| R509 | 06S64995F89 | 33K ohm |
| R510 | 06S64995F45 | 470 ohm |
| R511 | 06S64995F89 | 33K ohm |
| R512 | 06S64995F93 | 47K ohm |
| R513 | 06S64995F55 | 1.2K ohm |
| R514 | 06S64996F26 | 1M ohm |
| R515 | 06S64996F02 | 100K ohm |
| R516 | 06S64996F02 | 100K ohm |
| R517 | 06S64996F10 | 220K ohm |
| R518 | 06S64996F02 | 100K ohm |
| R519 | 06S64995F93 | 47K ohm |
| R520 | 06S64995F93 | 47K ohm |
| R521 | 06S64995F93 | 47K ohm |
| R522 | 06S64995F93 | 47K ohm |
| R523 | 06S64995F93 | 47K ohm |
| R524 | 06S64995F93 | 47K ohm |
| R525 | 06S64995F93 | 47K ohm |
| R526 | 06S64995F93 | 47K ohm |
| R527 | 06S64996F22 | 680K ohm |
| R528 | 06S64996F26 | 1M ohm |
| R529 | 06S64996F18 | 470K ohm |
| R530 | 06S64995F77 | 10K ohm |
| R531 | 06S64995F83 | 18K ohm |
| R532 | 06S64995F77 | 10K ohm |
| R533 | 06S64995F85 | 22K ohm |
| R535 | 06S64995F77 | 10K ohm |
| R536 | 06S64995F93 | 47K ohm |
| R537 | 06T70072F65 | 3.3K ohm 1/4W |
| R538 | 06S64995F53 | 1K ohm |
| R539 | 06S64996F18 | 470K ohm |
| R540 | 06S64995F53 | 1K ohm |
| R541 | 06S64995F93 | 47K ohm |
| R542 | 06S64995F85 | 22K ohm |

| Symbol No. | Part No. | Description |
|---|---|---|
| R550 | 06S64995F77 | 10K ohm |
| R551 | 06S64995F93 | 47K ohm |
| R570 | 06S64995F37 | 220 ohm |
| R801 | 06S64995F74 | 7.5K ohm |
| R802 | 06S64995F81 | 15K ohm |
| R803 | 06T70072F45 | 470 ohm 1/4W |
| R804 | 06T70072F45 | 470 ohm 1/4W |
| R805 | 06S64995F90 | 36K ohm |
| R806 | 06S64995F73 | 6.8K ohm |
| R812 | 06T70072F13 | 22 ohm 1/4W |
| R815 | 06S64995F77 | 10K ohm |
| R821 | 06S64995F29 | 100 ohm |
| R822 | 06S64995F29 | 100 ohm |
| VR101 | 18T91059F20 | Variable, 150K ohm |
| VR102 | 18T91059F17 | Variable, 47K ohm |
| VR103 | 18T91059F09 | Variable, 2.2K ohm |
| **Miscellaneous** | | |
| BA807 | 60T91060F01 | Battery, LIT CR2032-HE2 |
| C205 | 08S65480F37 | CAP., CER. 100pF |
| ET801 | 01T15719W04 | Assy., DIN Connector (8P) |
| HD101 | 88T15309W01 | Pick-up SF-87.5 |
| LD101 | 48T16057W01 | LED, AN501 (RED) |
| LD102 | 48T16057W02 | LED, AN501-B1 (RED) |
| LD103 | 48T16057W02 | LED, AN501-B1 (RED) |
| M101 | 59T90879F01 | Motor, Load 6V-260mA (LOADING) |
| M102 | 59T15716W01 | Motor, Load 8V-85mA (ELEVTOR) |
| M103 | 59T52973F03 | Motor, Servo 6V-210mA (SLED) |
| PI101 | 48T15722W01 | Interrupter, Photo GP1S51 |
| PT101 | 48T15938W01 | TR., Photo PS502 |
| PT102 | 48T15938W01 | TR., Photo PS502 |
| PT103 | 48T15938W01 | TR., Photo PS502 |
| S101 | 40T70366F01 | Switch, Tact KHL-10906 (EJECT) |
| S102 | 40T71025F01 | Switch, Detector (LOADING) |
| S103 | 40T71025F01 | Switch, Detector (HOME POSITION) |
| S104 | 40T71025F01 | Switch, Detector (MAGAZINE) |
| S105 | 40T71025F01 | Switch, Detector (LIMIT) |

# Exploded View (Cabinet)



# Cabinet Assembly Parts List

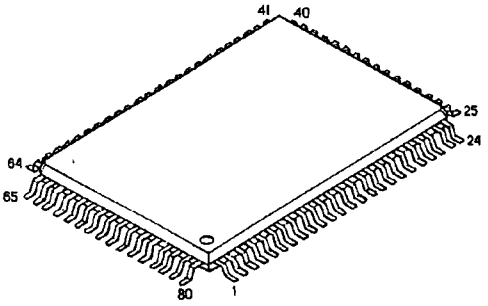
**Note :** The parts without parts list are not supplied.

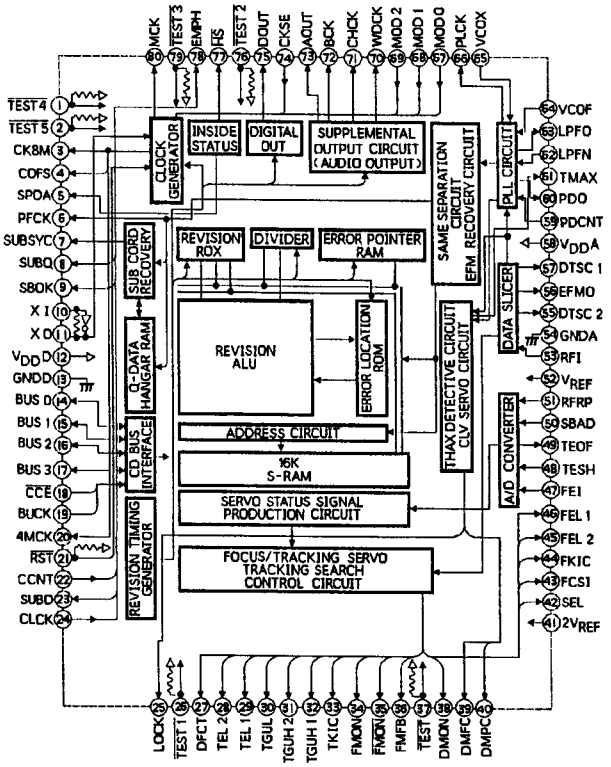
| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 1 | 3-A | 13C31167W06 | Assy., Front Escutcheon |
| 2 | 2-E | 15D22218W01 | Cover, Top |
| 5 | | 03D40121T41 | Screw, W/Double Washer (M3×6) |
| 6 | 1-A | 15B22213W01 | Cover, Plate (L) |
| 7 | | 15B22423W01 | Holder, Damper (B) |
| 8 | 4-E | 04A11427W01 | Washer, Damper |
| 9 | | 03S94385F15 | Screw, Pan (M2.6×4) |
| 10 | 5-F | 03S94385F17 | Screw, Pan (M2.6×6) |
| 11 | | 41B11514W01 | Spring, Extension |
| 12 | 1-C | 15A30962W01 | Cover, Connector |
| 13 | | 03S44205G34 | Screw, Pan (M2.6×5) |
| 14 | 3-C | 64B12370W01 | Assy., Plate Inner |
| 17 | 2-B | 15B30057W01 | Holder, Wire |
| 18 | 2-D | 03S44205G48 | Screw, Pan (M2.6×5) |
| 19 | | 75A28002W01 | Damper, DR (B) |
| 20 | 3-G | 15B22214W01 | Cover, Plate (R) |
| 23 | | 04A28003W01 | Spacer, Damper |
| 25 | 2-D | 03S94385F10 | Screw, Pan (M2×4) |
| 26 | | 03A13419W04 | Screw, Transport (M4×21.5) |
| 27 | 3-C | 14S71058F23 | Insulator, Cover |
| 28 | | 03A38056W01 | Screw, Special (M2.6×6) |
| 30 | | 03S44205G98 | Screw, Pan (M2.6×5) |

| Symbol No. | Index | Part No. | Description |
|---|---|---|---|

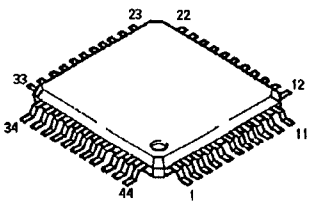
# Semi-Conductor Lead Identifications

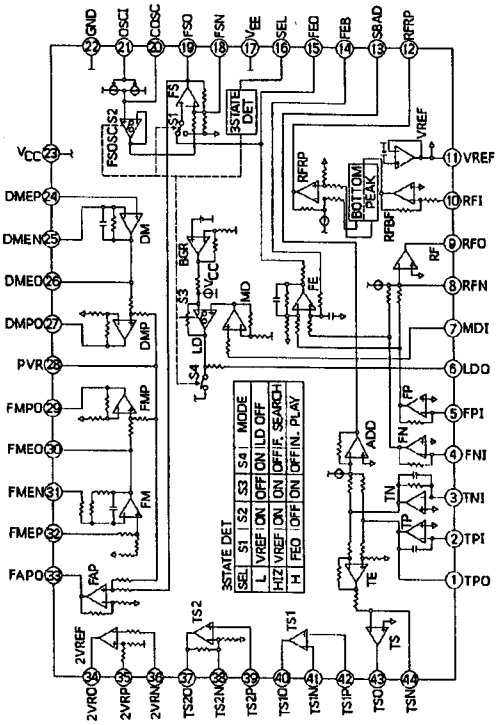
**TC9236F** : IC101



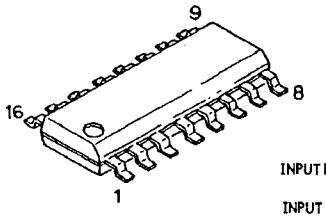



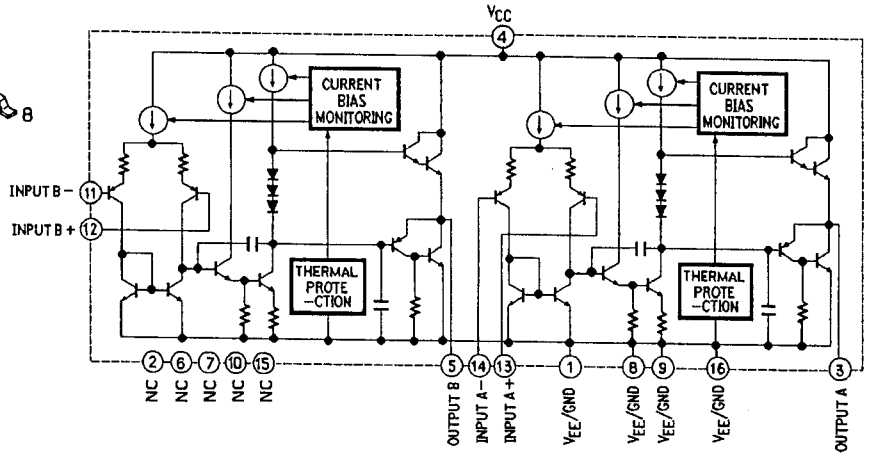

**TA8191F** : IC102



**TCA0372M** : IC103, 104

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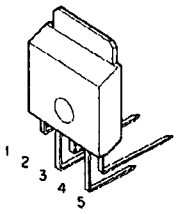


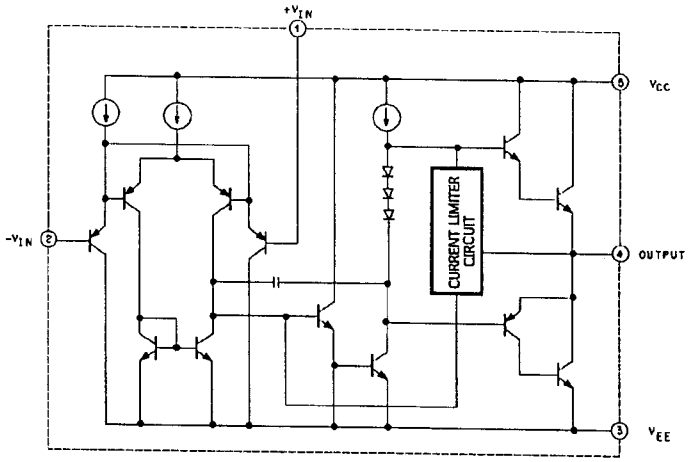


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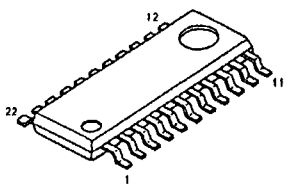
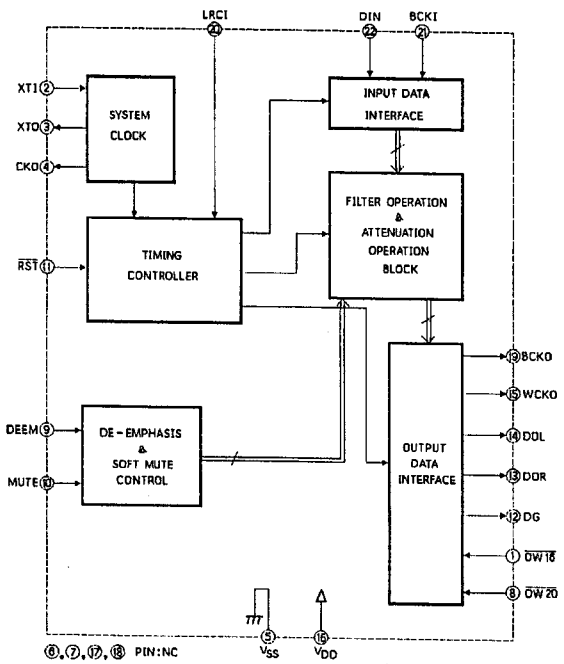
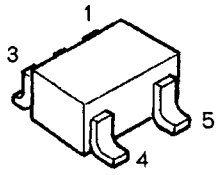
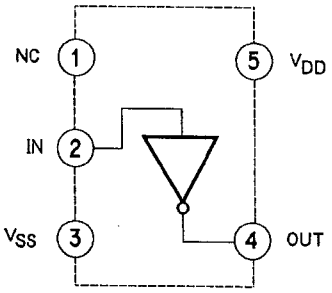


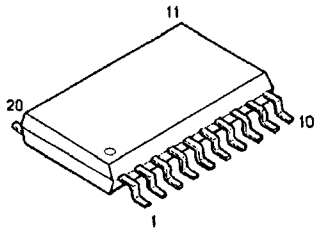



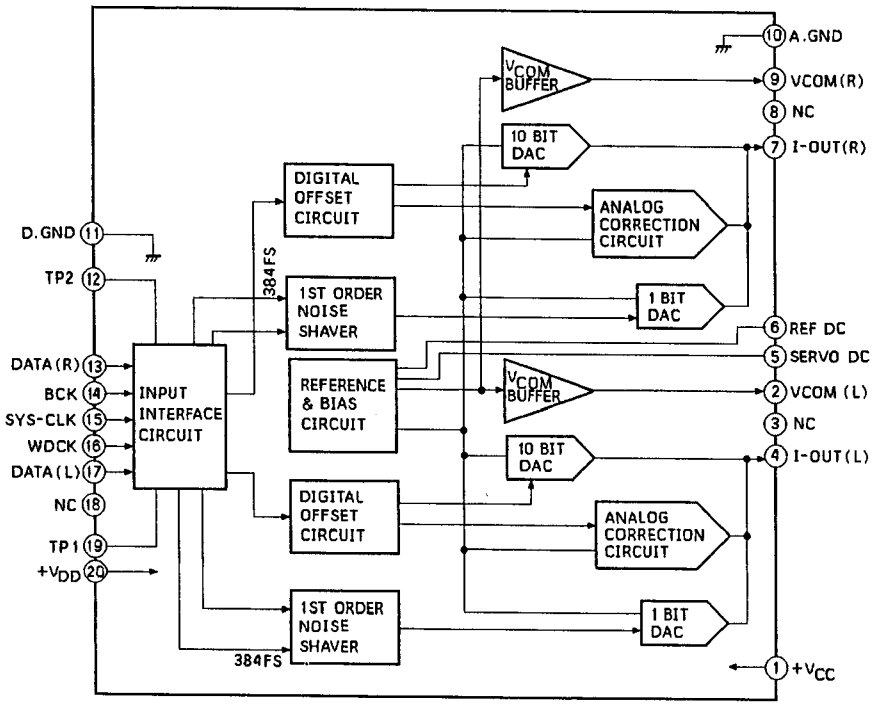
**TC7SU04F** : IC109



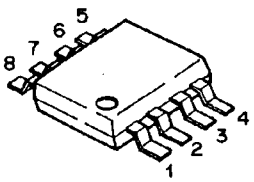



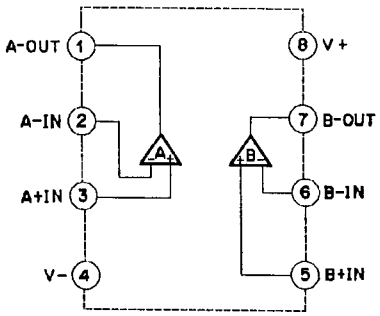

**PCM67U** : IC202



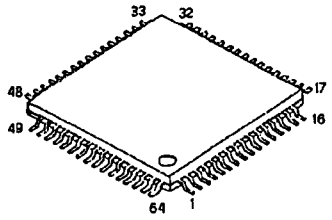




**NJM2100M** : IC203, 204



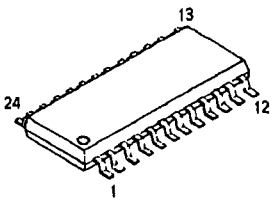



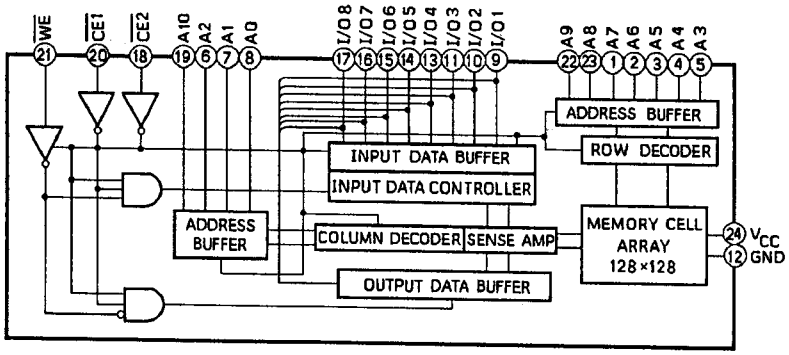
**35253W01**
**15590W40** : IC501



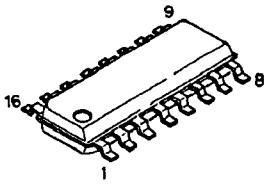

| PIN NO. | CORD ADDRESS | I/O | PIN NO. | CORD ADDRESS | I/O | PIN NO. | CORD ADDRESS | I/O |
|---|---|---|---|---|---|---|---|---|
| 1 | A5 | O | 23 | H TEMP | I | 45 | BUS 3 | I/O |
| 2 | A4 | O | 24 | EJECT | I | 46 | BUS 2 | I/O |
| 3 | A3 | O | 25 | IGN | I | 47 | BUS 1 | I/O |
| 4 | A2 | O | 26 | GND | — | 48 | BUS 0 | I/O |
| 5 | A1 | O | 27 | STBY | I | 49 | D8 | I/O |
| 6 | A0 | O | 28 | BATT | I | 50 | D7 | I/O |
| 7 | $\overline{RESET}$ | I | 29 | BUS IN | I | 51 | D6 | I/O |
| 8 | X2 | — | 30 | DISC NO | I | 52 | D5 | I/O |
| 9 | X1 | — | 31 | DISC P | I | 53 | D4 | I/O |
| 10 | $\overline{WE}$ | O | 32 | LOD P | I | 54 | D3 | I/O |
| 11 | $\overline{OE}$ | O | 33 | DISC OK | I | 55 | D2 | I/O |
| 12 | W OUT | I | 34 | $\overline{HOME}$ | I | 56 | D1 | I/O |
| 13 | F CONT | O | 35 | $\overline{MAGZ}$ | I | 57 | $V_{PP}$ | — |
| 14 | M.CNT 2 | O | 36 | LIM | I | 58 | $V_{DD}$ | — |
| 15 | M.CNT 3 | O | 37 | BUS OUT | O | 59 | $\overline{CE}$ | O |
| 16 | NC | — | 38 | LSI RST | O | 60 | A10 | O |
| 17 | NC | — | 39 | BUCK | O | 61 | A9 | O |
| 18 | NC | — | 40 | CCE | O | 62 | A8 | O |
| 19 | MUTE | O | 41 | GND | — | 63 | A7 | O |
| 20 | M.CNT1 | I/O | 42 | DOUT SW | I | 64 | A6 | O |
| 21 | V CONT | O | 43 | LOCK | I | | | |
| 22 | LOAD SW | I | 44 | M.CNT-SET | I | | | |

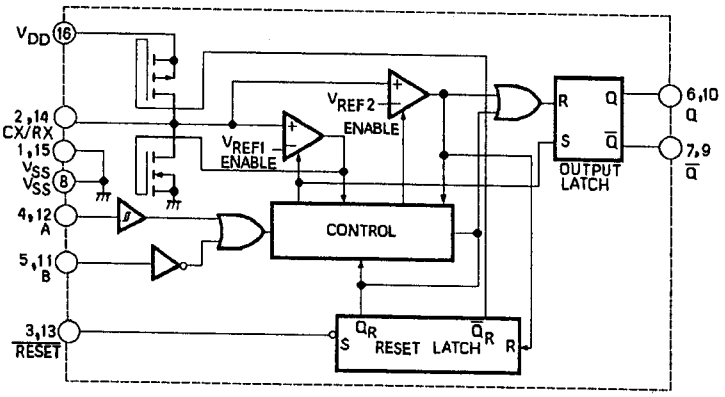
**LC3516AML**
**CXK5816M** : IC502



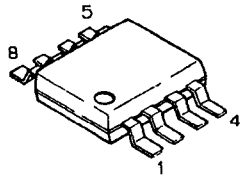



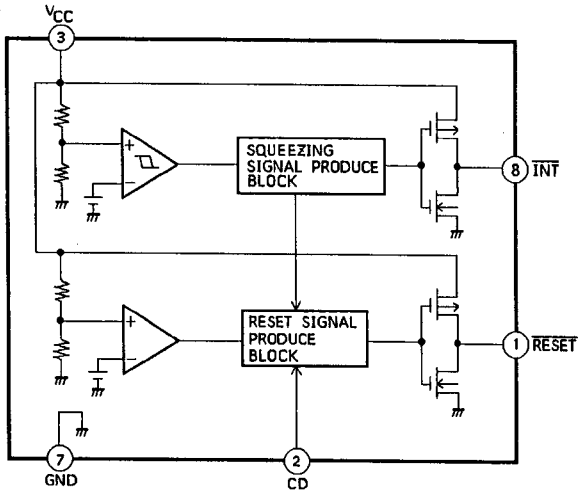

**MC14538BFEL** : IC503



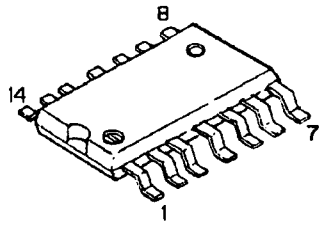



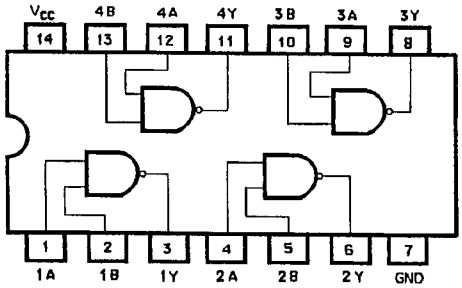
**M62007FP** : IC504



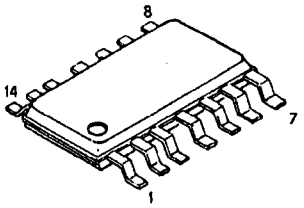



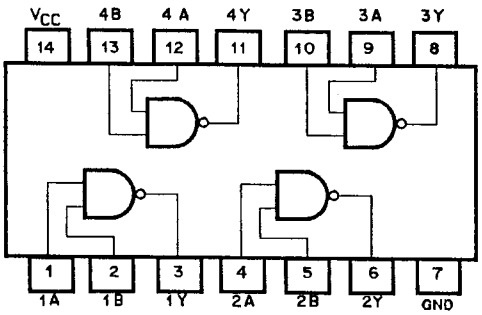

**HD74HC00FP** : IC505



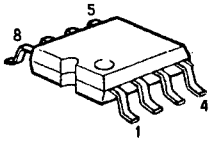



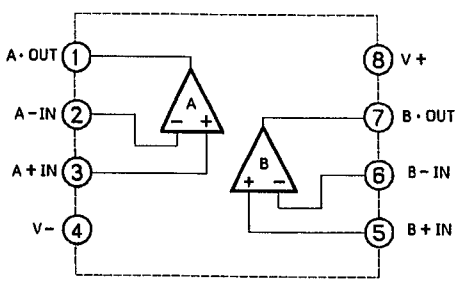

**MC74HC00AFL** : IC505




**BA10393F** : IC506



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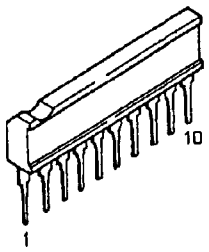
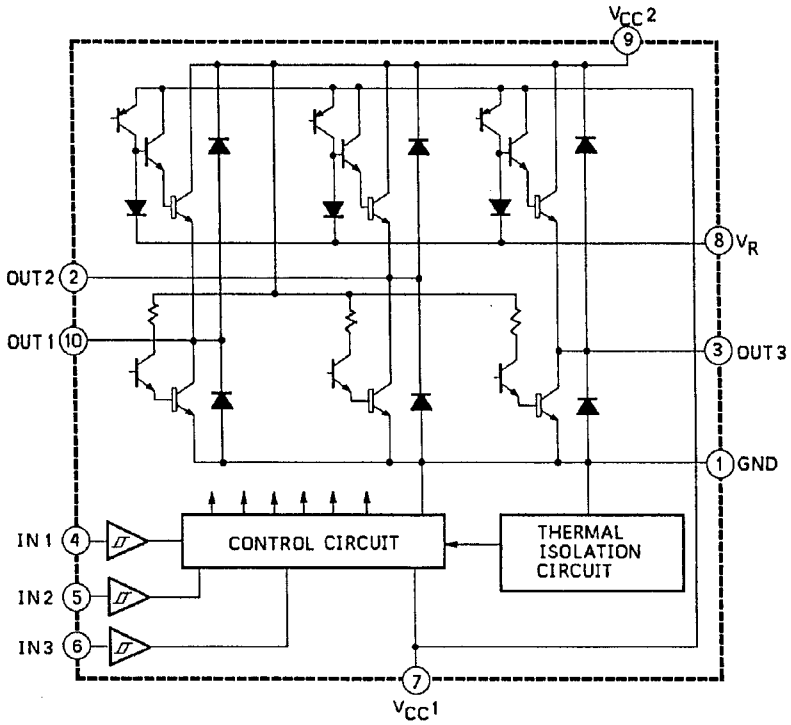
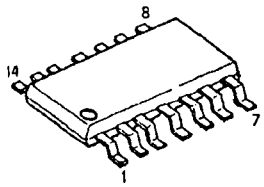
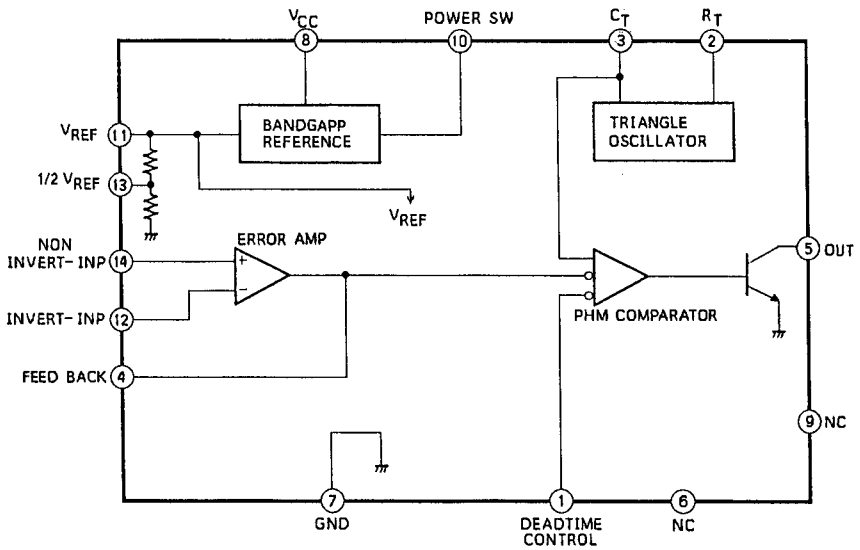


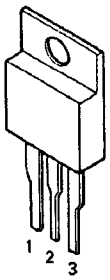




**BA9700AF** : IC801

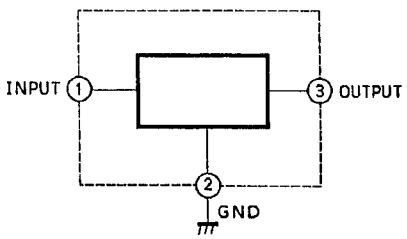



**MC7805CT**
**TA7805AP** : IC802
**TA7805S**




1 : INPUT
2 : GND
3 : OUTPUT

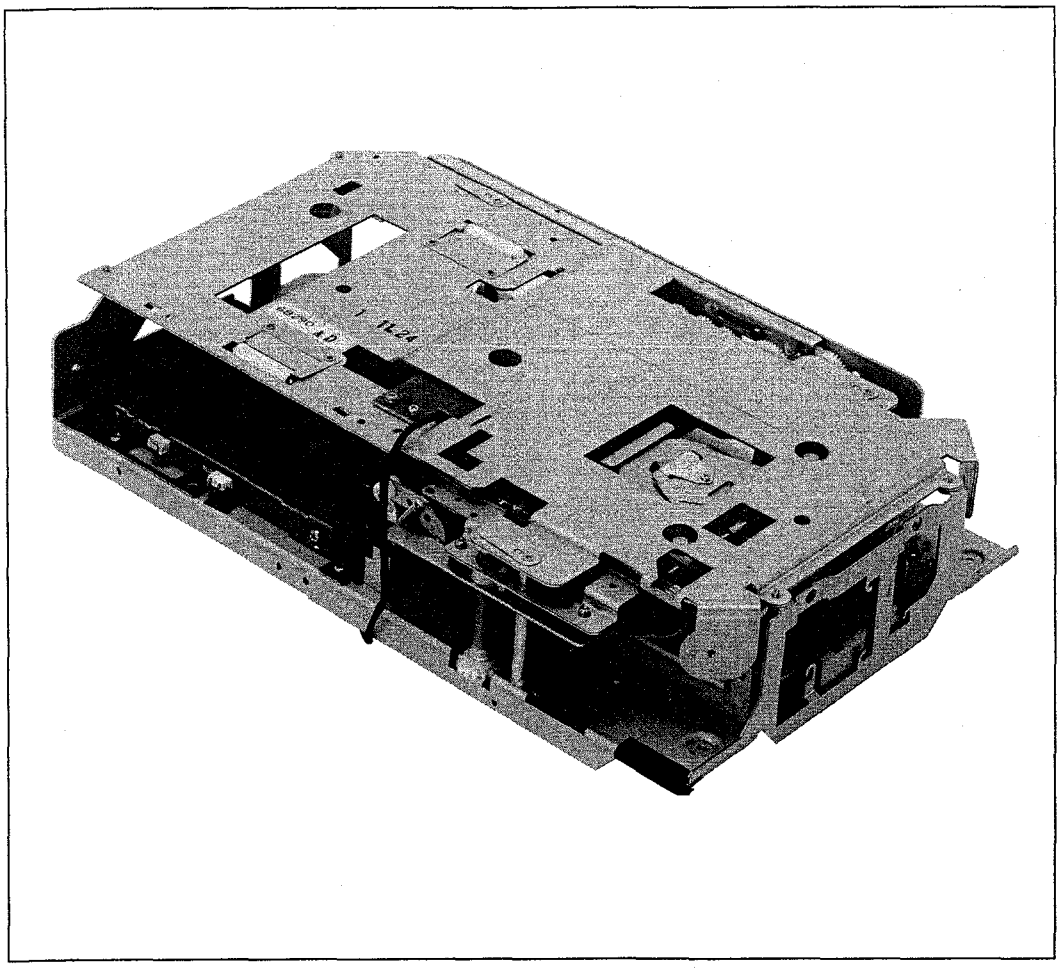


ALPINE®

# SERVICE MANUAL

## CD Remote Changer Mechanism
## CD Shuttle

### ADDENDUM & REVISED (II)



# DR SERIES

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# Disassembly Instructions

## <DR24A010 Model Only>

**1. Removal of Pick-up Unit**

(1)Remove three screws marked "○" as shown in Figure 1.

**2. Removal of Sled Motor**

(1) After removal of the pick-up unit, remove the motor bracket with sled motor by removing the solder (A) and two screws marked "×" as shown in Figure 1.

(2) Remove the solder (B) and a screw marked "□" as shown in Figure 1.

**3. Removal of Head Unit**

(1) After removal of the motor bracket, remove the shaft bracket and the screw bracket by removing two screws marked "△" as shown in Figure 1.

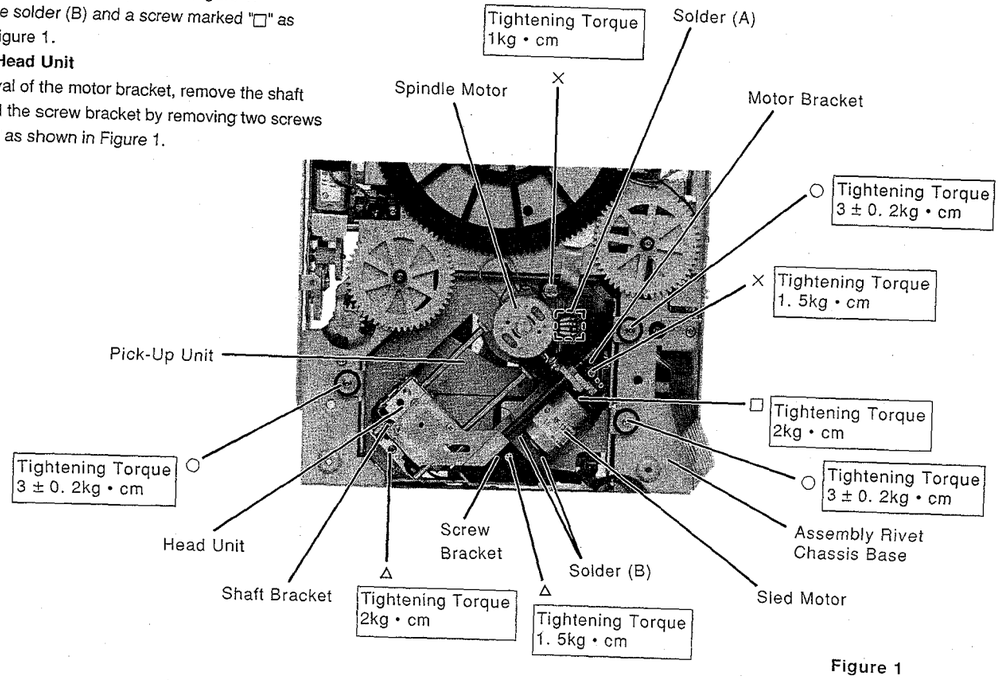


Figure 1

**4. Removal of LED P. C. Board**

(1) Remove two screws marked "●" as shown in Figure 2.

**5. Removal of Switch P.C. Board**

(1) Remove a screw marked "▲" as shown in Figure 2.

(2) Remove the hook (A) as shown in Figure 2.

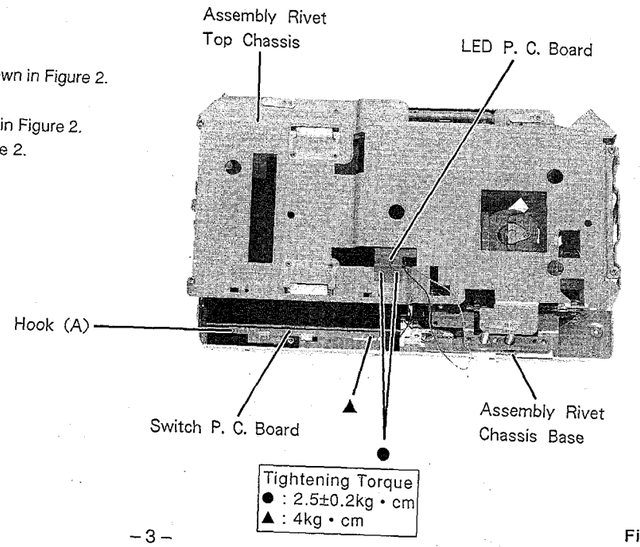


Figure 2



**6. Removal of Assembly Rivet Chassis CR**

(1) After Remove seven screws marked "∞", remove the Assembly Rivet Top Chassis and the Assembly Rivet Chassis Base as shown in Figure 3.

**7. Removal of Photo P. C. Board**

(1) After picking up the Assembly Rivet Chassis CR, remove the solder (C) as shown in Figure 4.

(2) Remove a screw marked "■" as shown in Figure 4.

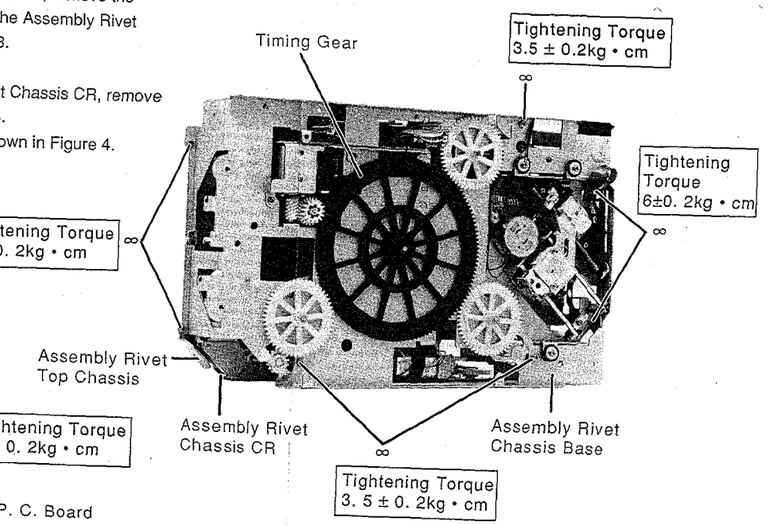


Figure 3

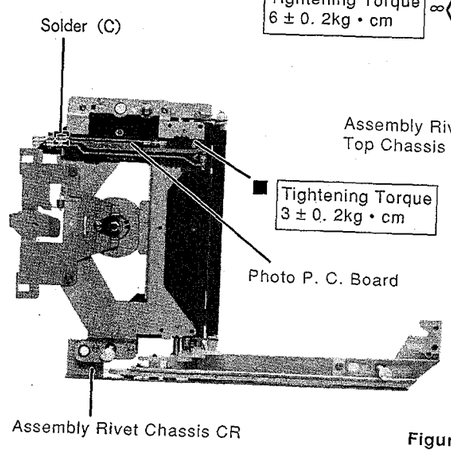


Figure 4

**8. Removal of Sensor P. C. Board**

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (D) and (E) as shown in Figure 5.

(2) Remove two screws marked "☆" as shown in Figure 5.

**9. Removal of Loading Motor**

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (E) as shown in Figure 5.

(2) Remove two screws marked "★" as shown in Figure 5.

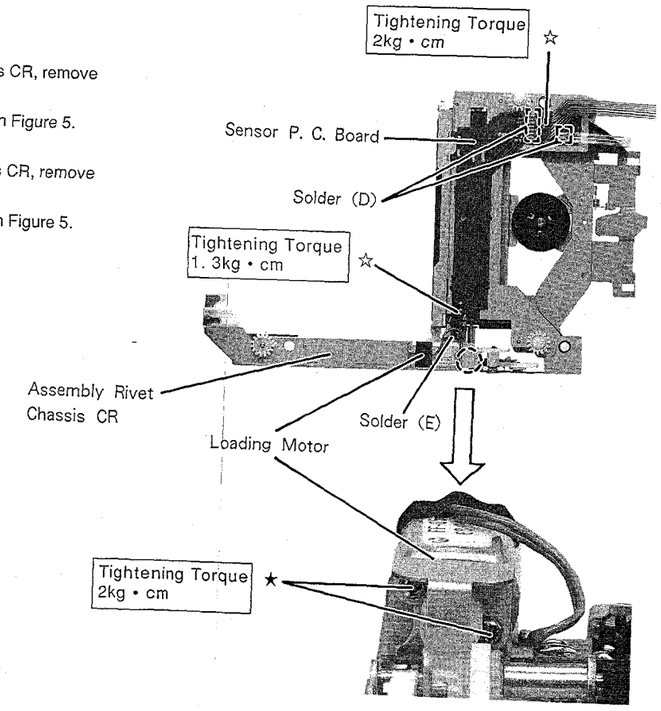


Figure 5

**6. Removal of Assembly Rivet Chassis CR**

(1) After Remove seven screws marked "∞", remove the Assembly Rivet Top Chassis and the Assembly Rivet Chassis Base as shown in Figure 3.

**7. Removal of Photo P. C. Board**

(1) After picking up the Assembly Rivet Chassis CR, remove the solder (C) as shown in Figure 4.

(2) Remove a screw marked "■" as shown in Figure 4.

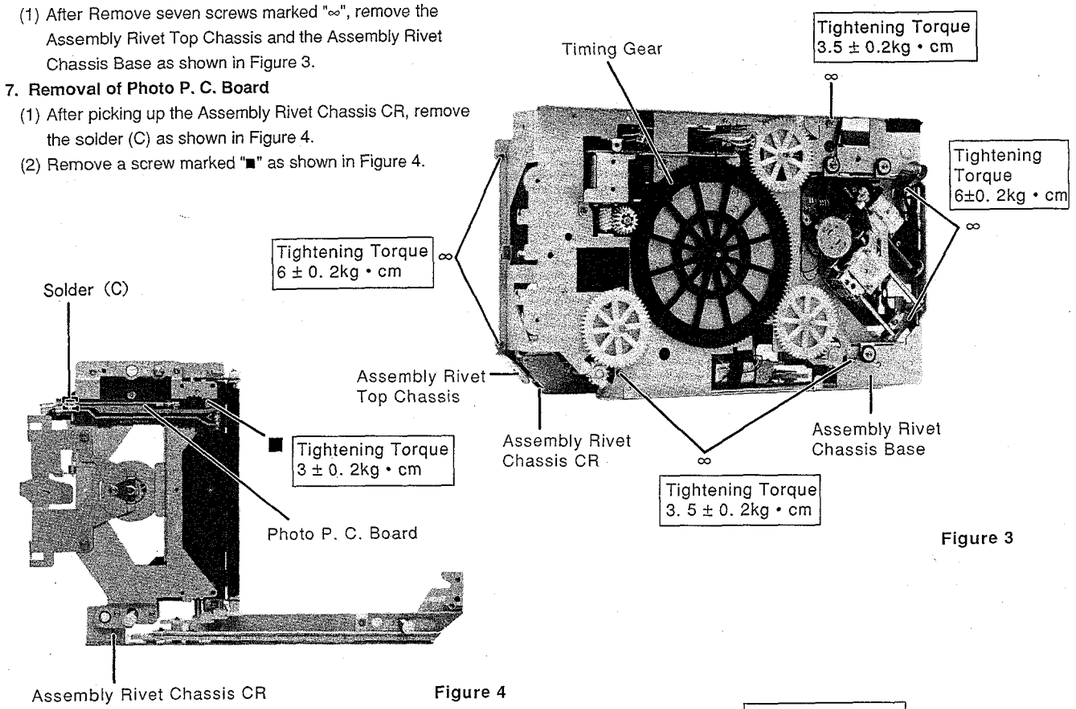


Figure 3

Figure 4

**8. Removal of Sensor P. C. Board**

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (D) and (E) as shown in Figure 5.

(2) Remove two screws marked "☆" as shown in Figure 5.

**9. Removal of Loading Motor**

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (E) as shown in Figure 5.

(2) Remove two screws marked "★" as shown in Figure 5.

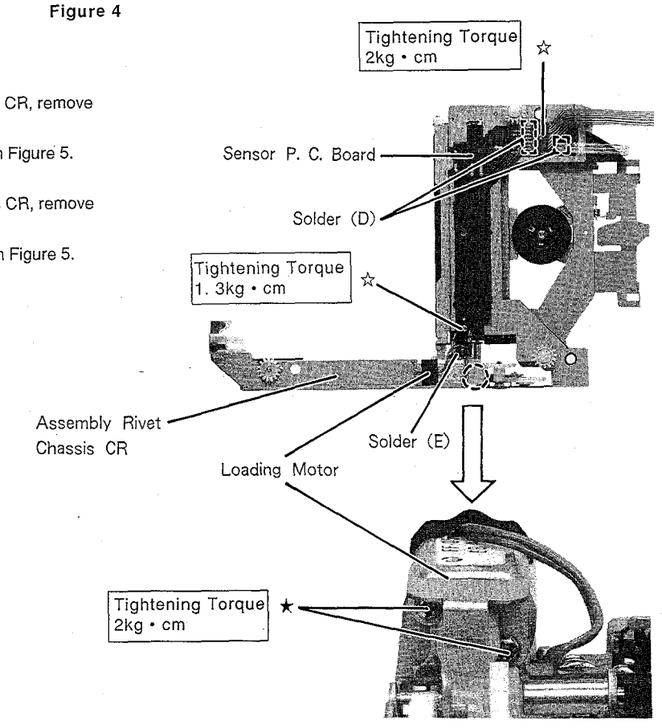


Figure 5



**10. Removal of Elevator Motor**

(1) After removal of the Assembly Rivet Chassis CR, remove the timing gear by removing the washer (A) as shown in Figure 6.

(2) Remove the Assembly Rivet Bracket Motor by removing two screws marked "◇" as shown in Figure 6.

(3) Remove the solder (F) as shown in Figure 7.

(4) Remove tow screws marked "◆" as shown in Figure 6.

**11. Removal of Interrupt P. C. Board**

(1) After removal of the Assembly Rivet Bracket Motor, remove the solder (F) as shown in Figure 7.

(2) Remove two screws marked "#" as shown in Figure 7.

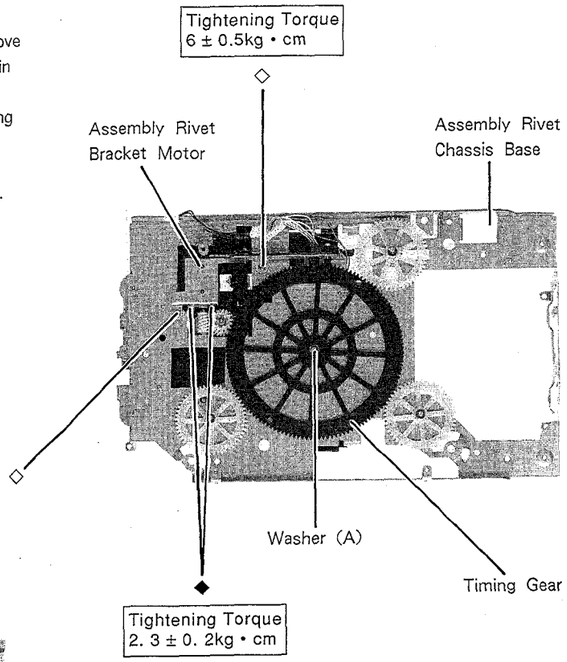


Figure 6

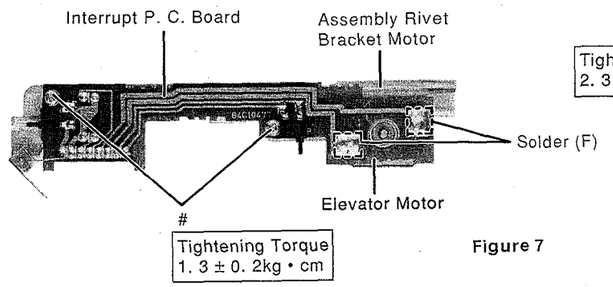


Figure 7

**12. Removal of Magazine Photo P. C. Board**

(1) After removal of the Assembly Rivet Chassis CR, remove the Assembly Rivet Chassis Magazine by removing three screws marked "※" as shown in Figure 8.

(2) Remove two screws marked "◎" as shown in Figure 8.

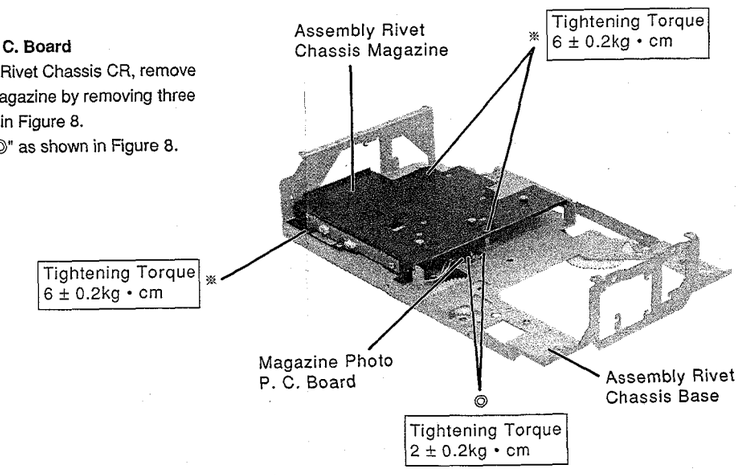


Figure 8

# Disassembly Instructions

## <DR24A020/02A/030/040 Model Only>

1. **Removal of Pick-Up Unit**
   (1) Remove three screws marked "○" as shown in Figure 9.
2. **Removal of Sled Motor**
   (1) After removal of the pick-up unit, remove the motor bracket with sled motor by removing the solder (A) and two screws marked "×" as shown in Figure 9.
   (2) Remove the solder (B) and a screw marked "□" as shown in Figure 9.
3. **Removal of Head Unit <DR24A020 Model Only>**
   (1) After removal of the motor bracket, remove the shaft bracket and the screw bracket by removing two screws marked "△" as shown in Figure 9.

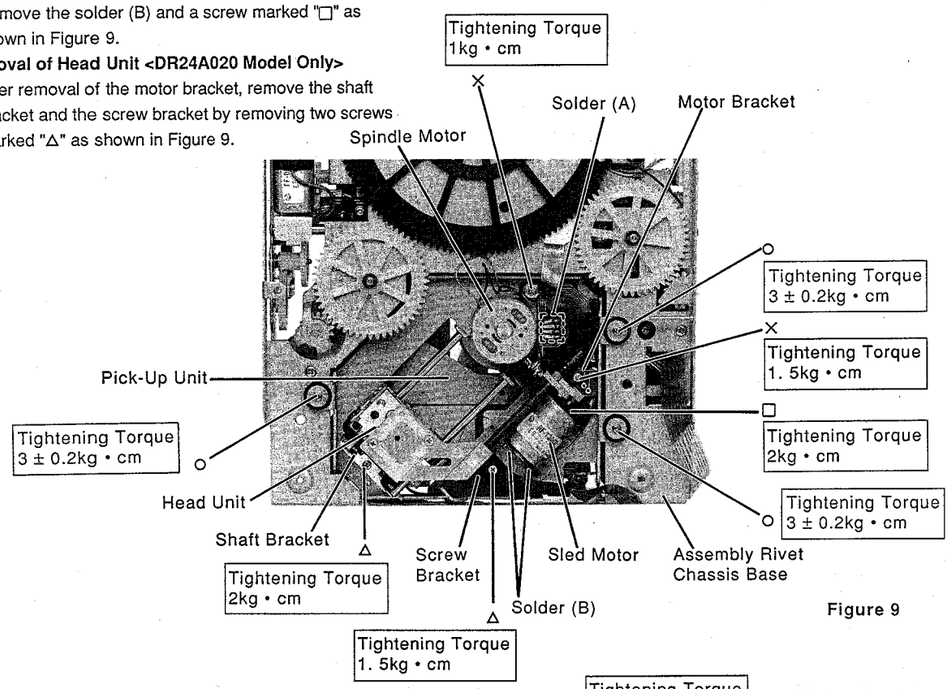


Figure 9

3. **Removal of Head Unit <DR24A02A/030/040 Model Only>**
   (1) After removal of the motor bracket remove the screw bracket by removing a screw marked "◉" as shown in Figure 10.
   (2) Remove four screws marked "⊗" and four shaft Stoppers as shown in Figure 10.

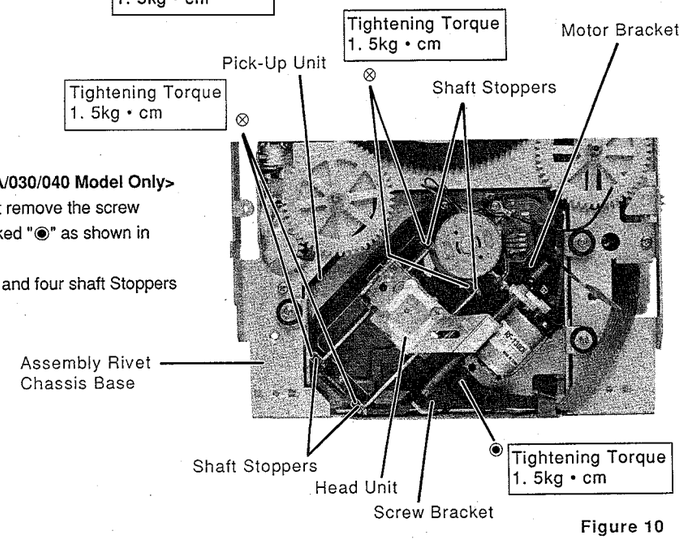


Figure 10





4. **Removal of Magazine Photo**
   (1) Remove a screw marked "●" as shown in Figure 11.
5. **Removal of Switch P. C. Board**
   (1) Remove a screw marked "▲" as shown in Figure 11.
   (2) Remove the Hook (A) as shown in Figure 11.

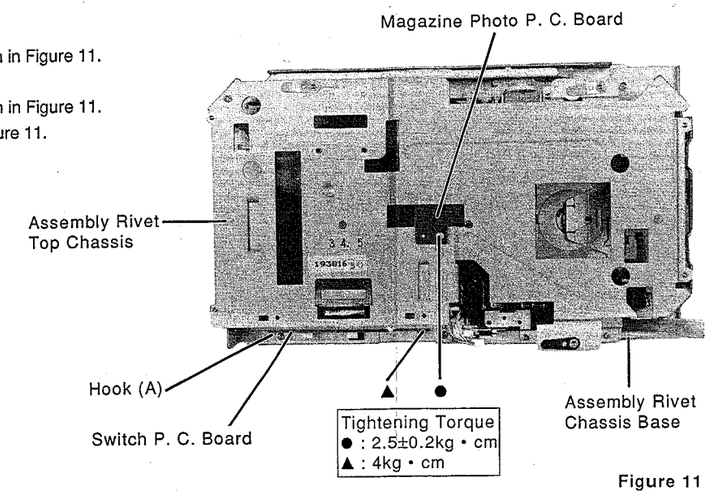


Figure 11

6. **Removal of Assembly Rivet Chassis CR**
   (1) After remove seven screws marked "∞", remove the Assembly Rivet Top Chassis and the Assembly Rivet Chassis Base as shown in Figure 12.
7. **Removal of LED P. C. Board**
   (1) After picking up the Assembly Rivet Chassis CR, remove the solder (C) as shown in Figure 13.
   (2) Remove a screw marked "■" as shown in Figure 13.

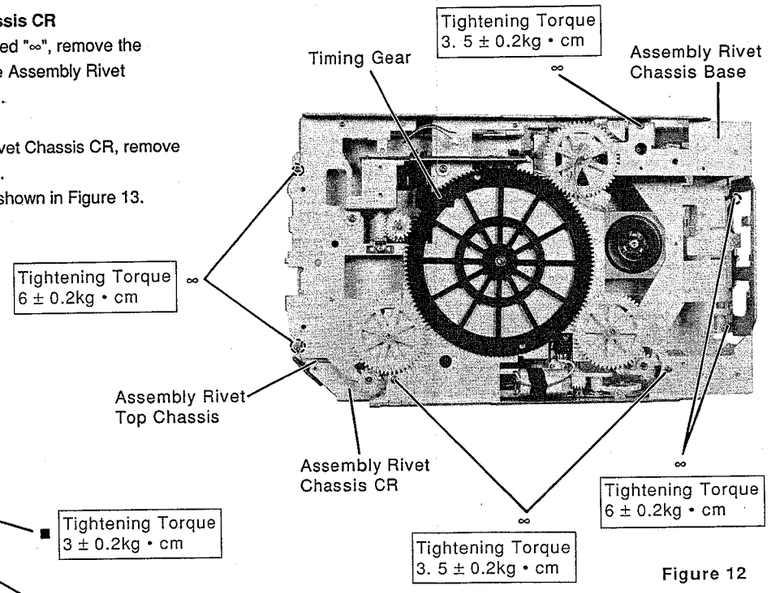


Figure 12

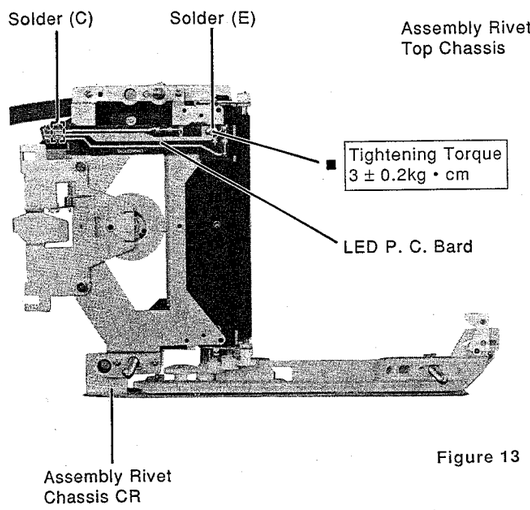


Figure 13



8. Remova
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   (2) Remo
   "☆" as
   Note: When
   damag
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   (1) After r
   the so
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    (3) Remo
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11. Remov
    (1) After
    remo
    (2) Remo

Tightening
1. 3 ± 0.2

#

Interrupt P.

**4. Removal of Magazine Photo**

(1) Remove a screw marked "●" as shown in Figure 11.

**5. Removal of Switch P. C. Board**

(1) Remove a screw marked "▲" as shown in Figure 11.

(2) Remove the Hook (A) as shown in Figure 11.

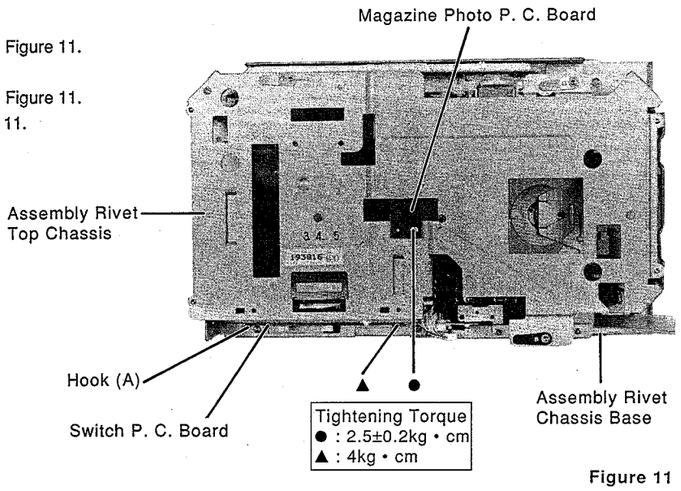



Figure 11

**6. Removal of Assembly Rivet Chassis CR**

(1) After remove seven screws marked "∞", remove the Assembly Rivet Top Chassis and the Assembly Rivet Chassis Base as shown in Figure 12.

**7. Removal of LED P. C. Board**

(1) After picking up the Assembly Rivet Chassis CR, remove the solder (C) as shown in Figure 13.

(2) Remove a screw marked "■" as shown in Figure 13.

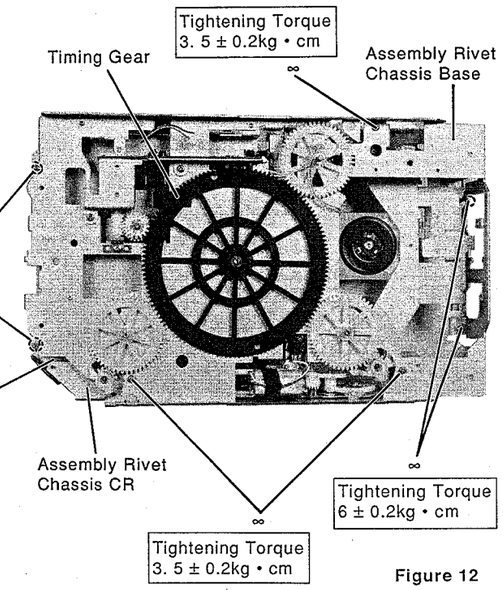



Figure 12

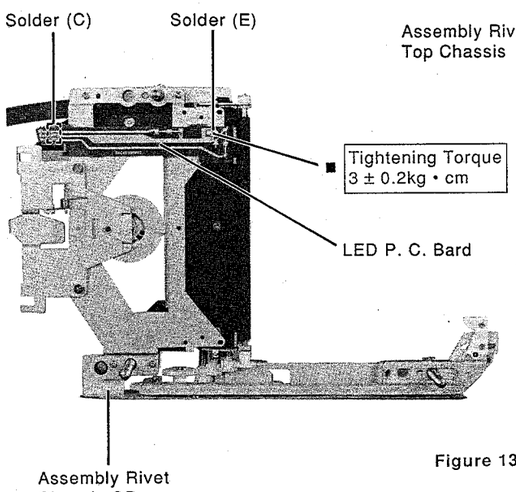



Figure 13



**8. Removal of Sensor P. C. Board**

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (E) and (F) as shown in Figure 14.

(2) Remove Elevator Screw Shaft and two screws marked "☆" as shown in Figure 14.

Note: When removing the sensor P. C. Board, be careful not to damage the Photo-Transistor.

**9. Removal of Loading Motor**

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (F) as shown in Figure 14.

(2) Remove two screws marked "★" as shown in Figure 14.

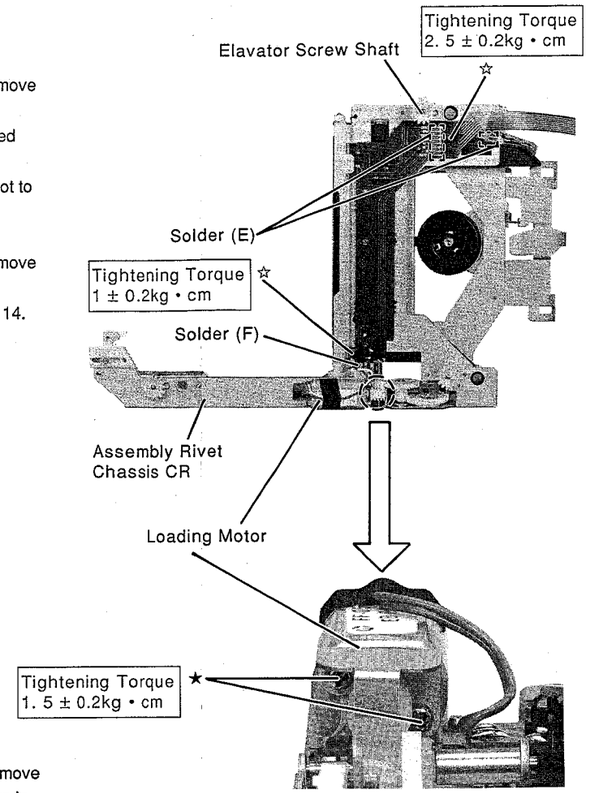



Figure 14

**10. Removal of Elevator Motor**

(1) After removal of the Assembly Rivet Chassis CR, remove the timing gear by removing the washer (A) as shown in Figure 15. **<DR24A020/02A Model Only>**

(1) After removal of the Assembly Rivet Chassis CR, remove the timing gear by removing the Ring "E" as shown in Figure 15. **<DR24A030/040 Model Only>**

(2) Remove the Assembly Rivet Bracket Motor by removing two screws marked "◇" as shown in Figure 15.

(3) Remove the solder (G) as shown in Figure 16.

(4) Remove two screws marked "◆" as shown in Figure 15.

**11. Removal of Interrupt P. C. Board**

(1) After removal of the Assembly Rivet Bracket Motor, remove the solder (G) as shown in Figure 16.

(2) Remove two screws marked "#" as shown in Figure16.

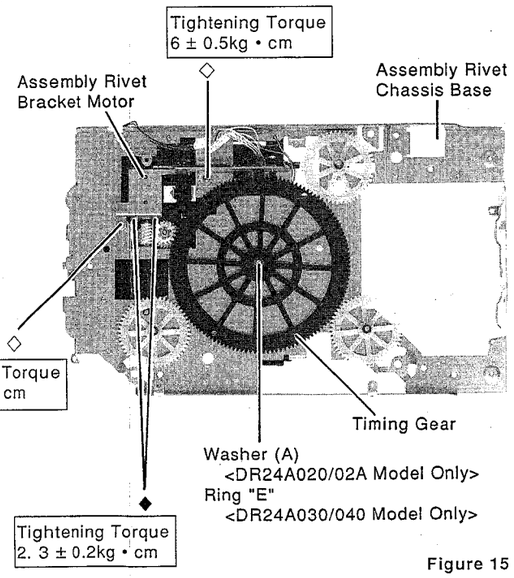



Figure 15

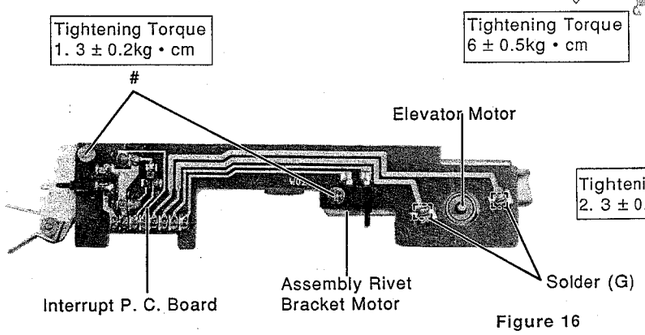



Figure 16

**12. Removal of Magazine LED P. C. Board**

(1) After removal of the Assembly Rivet Chassis CR, remove the Assembly Rivet Chassis Magazine by removing three screws marked "※" and the Hook (B) as shown in Figure 17.

(2) Remove a screw marked "◎" as shown in Figure 17.

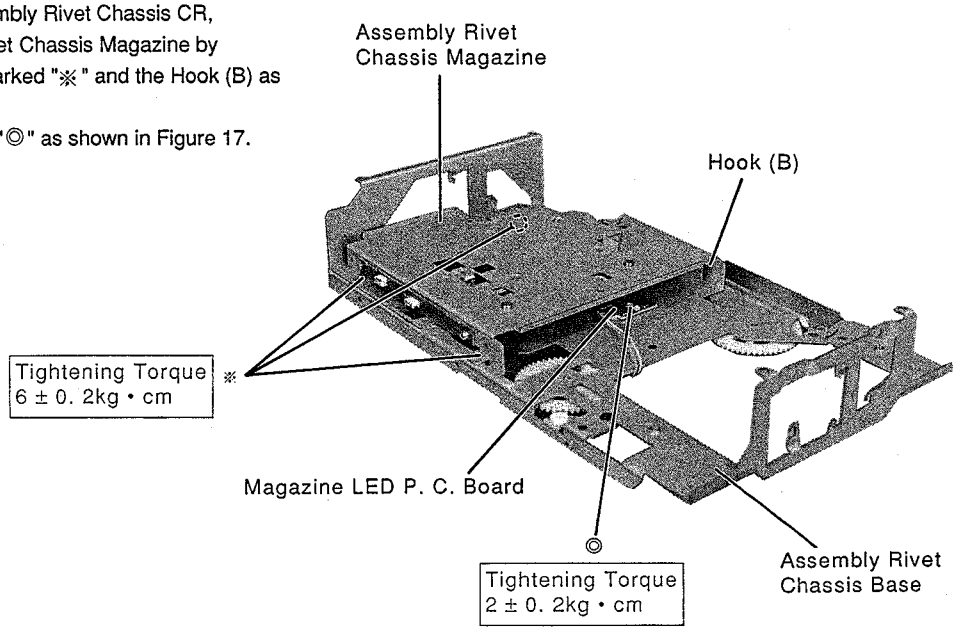


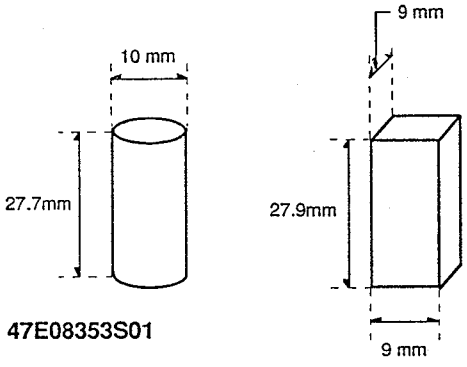

Figure 17

# Adjusting method for Elevator Height

1. Remove two lock washers and a ring "E", than remove three gears (D).
2. Turn three gears (E) and move the CR chassis to F direction (to the position of CD magazine).
3. Insert the adjustment jig (☆) as shown in Figure 18 between the chassis and the CR chassis as shown in Figure 19.
   * At the same time, insert the adjustment jig near each of three gears (E).
4. Adjust each of gears (E) to minimum gap and to getting smooth moving of each adjustment jig.
5. Adjust the H hole of timing gear to fit with the hole of chassis.
6. Mount three gears (D).
   * At this time, pay attention that the position between the gear (E) adjusted and Timing gear does not make gap.
7. Fix three gears (D) with two lock washers and a ring "E".

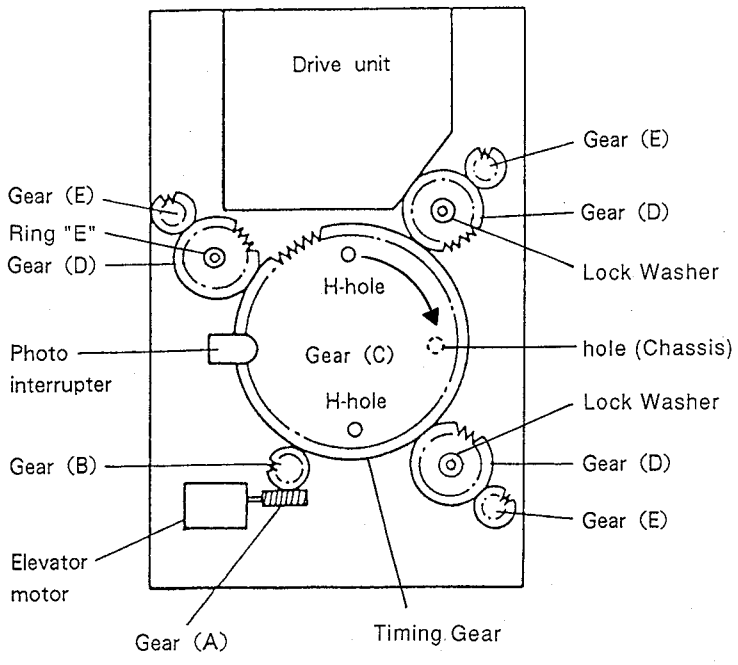
(☆) : 47E08353S01 (DR24A010 Model Only)
01V00346S01 (DR24A020/02A/030/040 Model Only)

## Adjustment Jig




(Three pieces are supplied.)

Figure 18



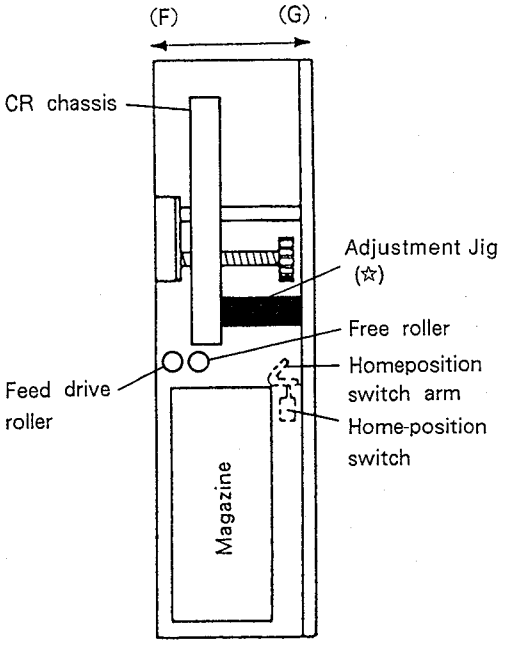




Figure 19

# Mechanism Function Description

| Function | Step | Description | Illustration |
|---|---|---|---|
| Magazine Insertion | ① | When the magazine is inserted, the eject lever is pushed in. | Figure 20 |
| | ② | The eject lever causes the magazine lock arm to move. | |
| | ③ | The magazine lock arm causes the magazine to lock and the magazine lock switch to be switched on. | |

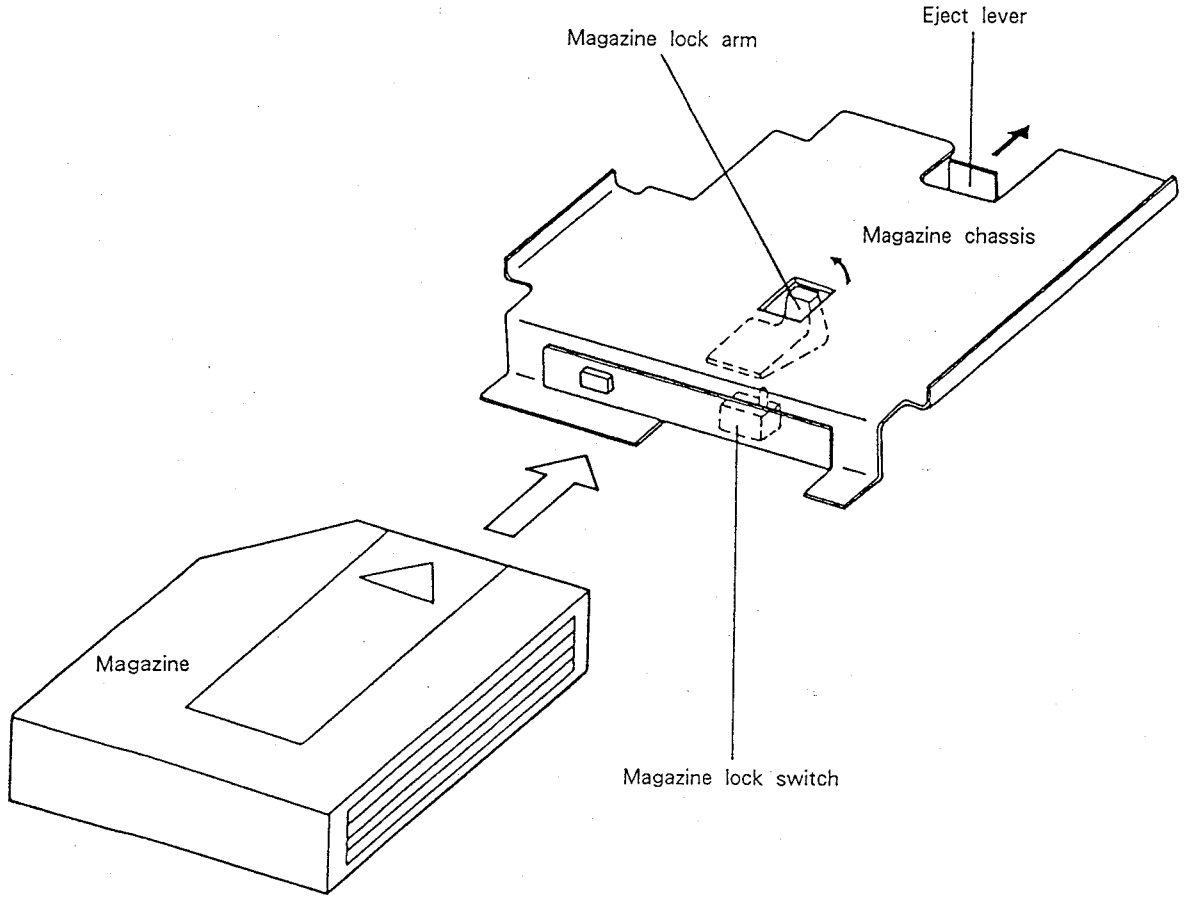



Figure 20

| Function | Step | Description | Illustration |
|---|---|---|---|
| Disc Loading | ① | The elevator motor rotates. | Figure 21 |
| | ② | The rotation is transmitted to gears (A), (B), (C), (D) and (E). | |
| | ③ | The CR chassis is moved in the (F) direction by rotation of gear (E). | |
| | ④ | The photo-interrupter counts the H-holes on gear (C) to control the movement distance of the CR chassis. | |
| | ⑤ | The CR chassis is stopped at the position of the first disc in the magazine.<br>* For the 2nd through 6th discs the movement distance of the CR chassis is the only thing that changes : the operation is the same. | |
| | ⑥ | The loading motor rotates. (The loading motor can rotate forward and in reverse.) | |
| | ⑦ | The rotation is transmitted to gears (I), (J), (K) and (L). | |
| | ⑧ | Simultaneous with the action of Step (7), the rotation is transmitted to gears (I), (J), (M), (N) and (O). | |
| | ⑨ | The rotation of gear (L) causes the disc eject lever to make a back-and-forth movement in the (P) and (Q) directions. | |
| | ⑩ | The disc eject lever causes the disc to be ejected from the magazine. | |
| | ⑪ | Since gear (O) and the feed drive roller are on the same axle, the rotation of gear (O) will cause the feed drive roller to rotate. | Figure 22 |
| | ⑫ | The disc is sandwiched between the feed drive roller and the free roller and the disc moves in the direction of the clamper. | |
| | ⑬ | Photosensors (1), (2) and (3) are consecutively blocked by the disc and finally, only photosensor (3) is a blocked condition. | Figure 21 |
| | ⑭ | The loading motor stops upon the judgment that the disc has entered. | |
| | ⑮ | The elevator motor rotates. (Rotation is in the opposite direction of Step (1). The elevator motor can rotate forward and in reverse.) | |
| | ⑯ | The rotation is transmitted to gears (A), (B), (C) and (D). | |
| | ⑰ | The rotation of gear (E) causes the CR chassis to move in the (G) direction. | |
| | ⑱ | The movement of the CR chassis causes the clamper to move and clamp the disc. | |
| | ⑲ | The movement of the CR chassis causes the home-position switch arm to move, and the home-position switch is switched on. | |
| | ⑳ | The photo-interrupter counts the H-holes on gear (C), and the elevator motor is stopped upon judgment that the CR chassis has reached the home position. | |

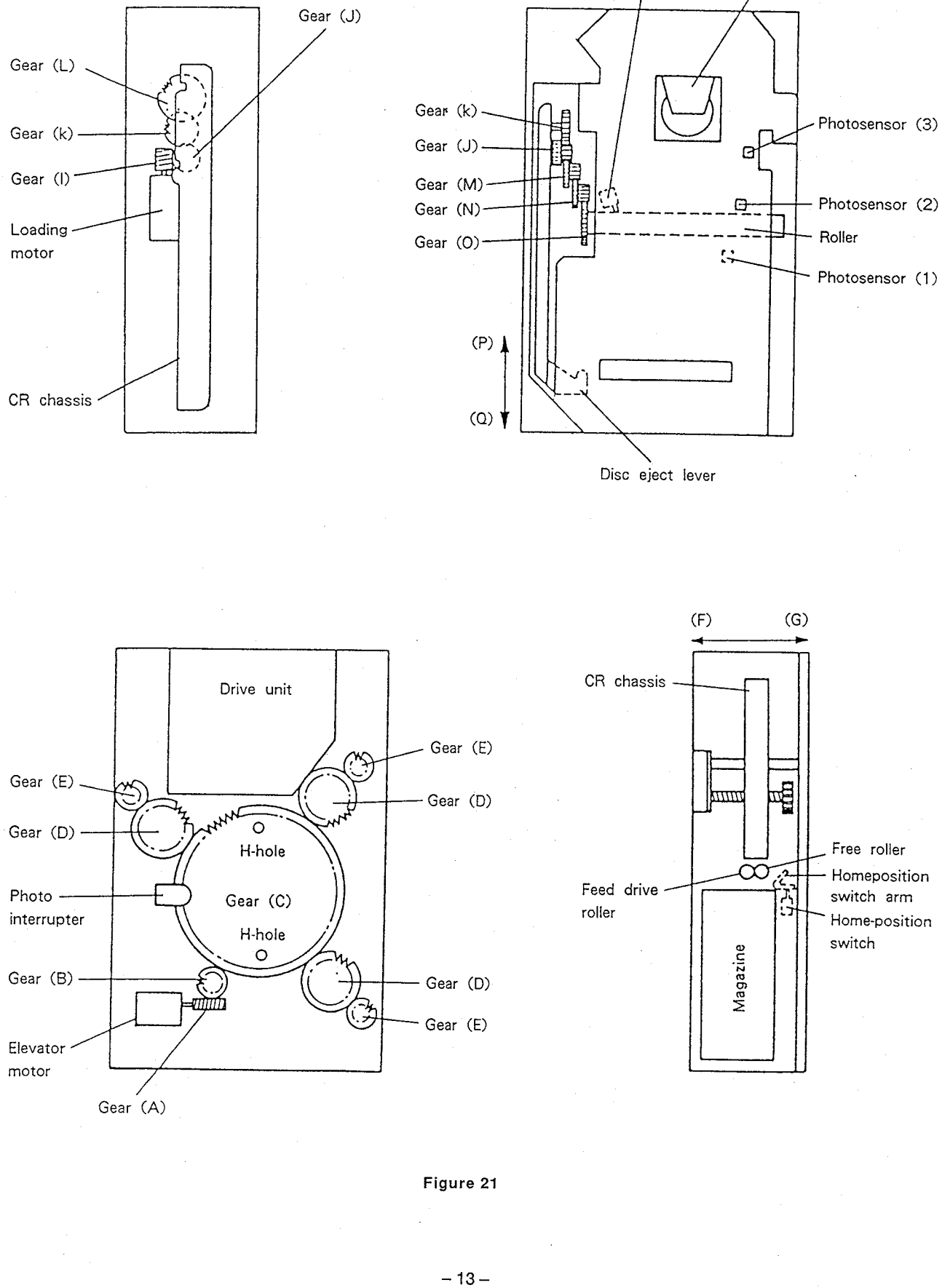

Gear (J)
Gear (L)
Gear (k)
Gear (I)
Loading motor
CR chassis
Loading arm switch
Clamper
Gear (k)
Gear (J)
Gear (M)
Gear (N)
Gear (O)
Photosensor (3)
Photosensor (2)
Roller
Photosensor (1)
(P)
(Q)
Disc eject lever
Drive unit
Gear (E)
Gear (D)
Gear (E)
Gear (D)
H-hole
Photo interrupter
Gear (C)
H-hole
Gear (B)
Gear (D)
Gear (E)
Elevator motor
Gear (A)
(F)
(G)
CR chassis
Free roller
Feed drive roller
Homeposition switch arm
Home-position switch
Magazine

**Figure 21**

| Function | Step | Description | Illustration |
|---|---|---|---|
| Play | ① | The spidle motor rotates the disc. | Figure 23 |
| | ② | The rotation of the sled motor is transmitted through the gears to the feed screw and causes the pickup to move. | |
| | ③ | The lead-in position of the disc is detected by the inner limit position switch and the reading of the disc data begins. | |
| Return of the disc to the magazine | ① | The elevator motor rotates. | Figure 21 |
| | ② | The rotation is transmitted to gears (A), (B), (C), (D) and (E). | |
| | ③ | The CR chassis is moved in the (F) direction by the rotation of gear (E). | |
| | ④ | The clamper is removed. | |
| | ⑤ | The photo-interrupter counts the H-holes on gear (C) to control the movement distance of the CR chassis. | |
| | ⑥ | The disc is sandwiched between the feed drive roller and the free roller. | |
| | ⑦ | The CR chassis is stopped at the position of the first disc in the magazine.<br>* For the 2nd through 6th disc the movement distance of the CR chassis is the only thing that changes : the operation is the same. | |
| | ⑧ | The loading motor rotates. | Figure 24 |
| | ⑨ | The rotation is transmitted to gears (I), (J), (M), (N) and (O). | Figure 21 |
| | ⑩ | The rotation of gear (O) causes the feed drive roller to rotate and to move in the direction of the disc magazine. | |
| | ⑪ | Blockage of photosensor (3) by the disc is cancelled. | |
| | ⑫ | The movement of the disc blocks photosensors (2) and (1) and cancels the blocking. | |
| | ⑬ | The blocking of photosensor (1) is cancelled and the disc is judged to have been housed in the magazine. | |
| | ⑭ | The loading motor stops. | |

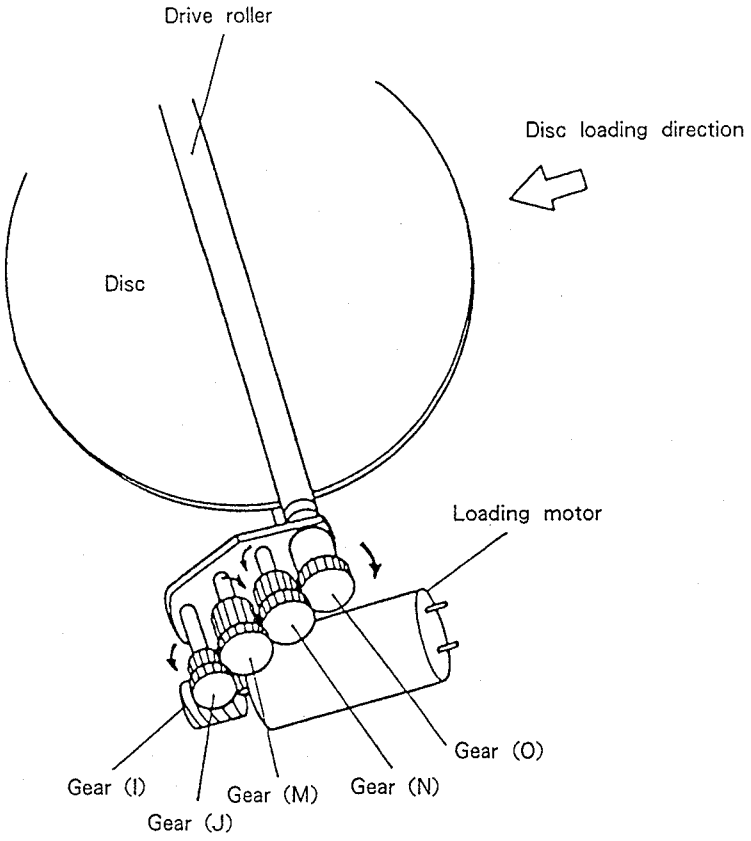



**Figure 22**

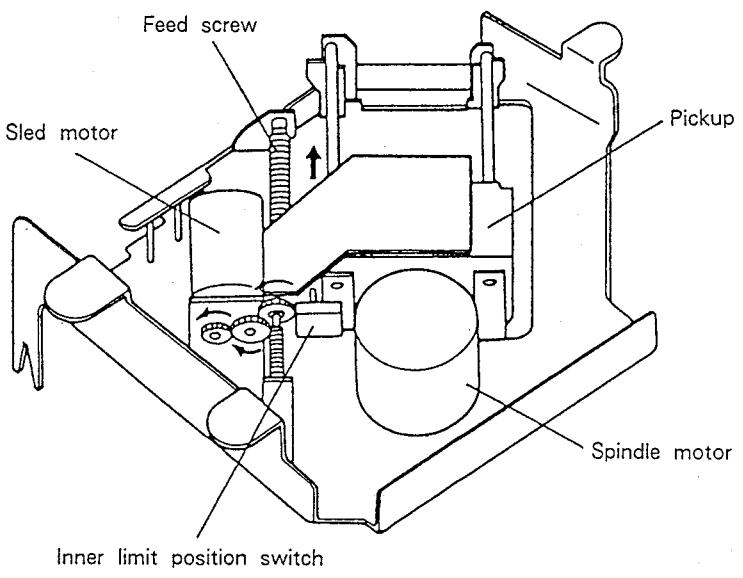



**Figure 23**

| Function | Step | Description | Illustration |
|---|---|---|---|
| Magazine Ejection | ① | Press the eject switch. | Figure 25 |
| | ② | The elevator motor rotates. | Figure 21 |
| | ③ | The rotation is transmitted to gears (A), (B), (C), (D) and (E). | |
| | ④ | The CR chassis is moved in the (G) direction by the rotation of gear (E). | |
| | ⑤ | The movement of the CR chassis causes the home-position switch arm to move, and the home-position switch is switched on. | |
| | ⑥ | The photo-interrupter counts the H-holes on gear (C), and the elevator motor is stopped upon judgment that the CR chassis has reached the home position. | |
| | ⑦ | The loading motor rotates. | |
| | ⑧ | The rotation is transmitted to gears (J), (K), and (L). | |
| | ⑨ | The rotation of gear (L) causes the disc eject lever to make a back-and-forth movement in the (P) and (Q) directions. | |
| | ⑩ | The disc eject lever causes the eject arm to move. | Figure 25 |
| | ⑪ | The eject arm causes the eject lever to move, the magazine lock arm is released and the magazine is ejected. | |
| | ⑫ | The magazine lock switch is switched off and there is a judgment that the magazine has been ejected. | Figure 21 |

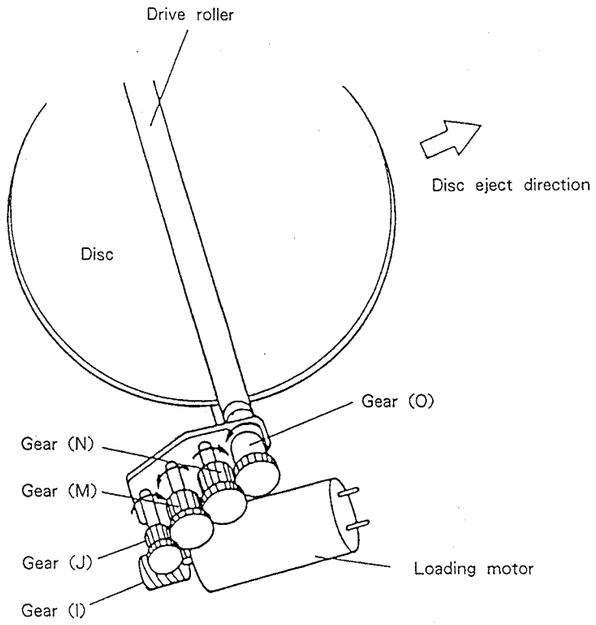



Figure 24

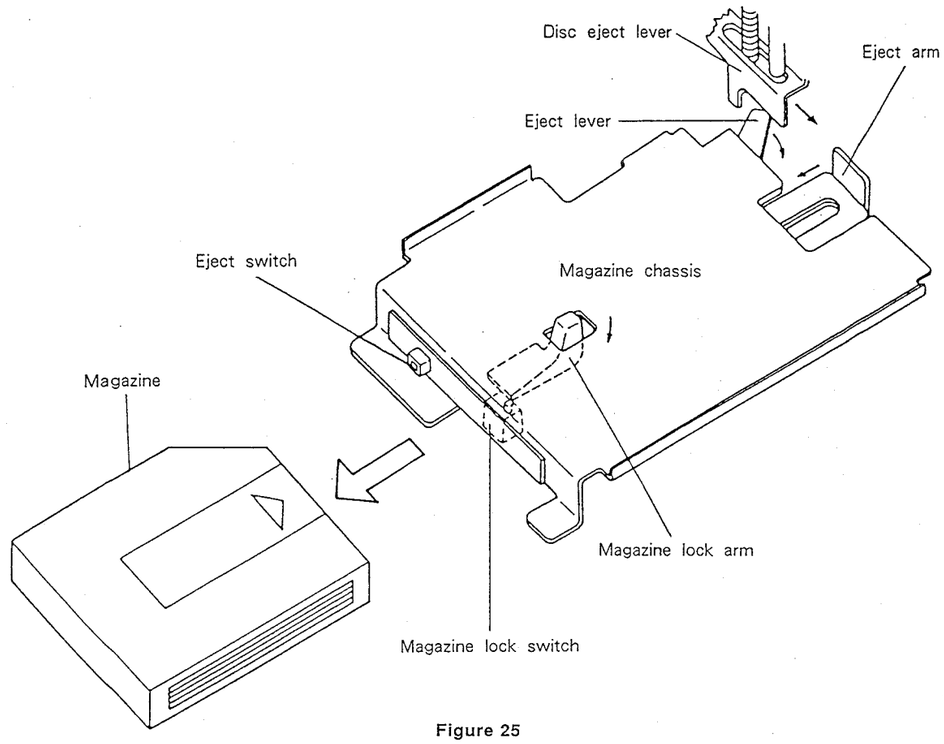
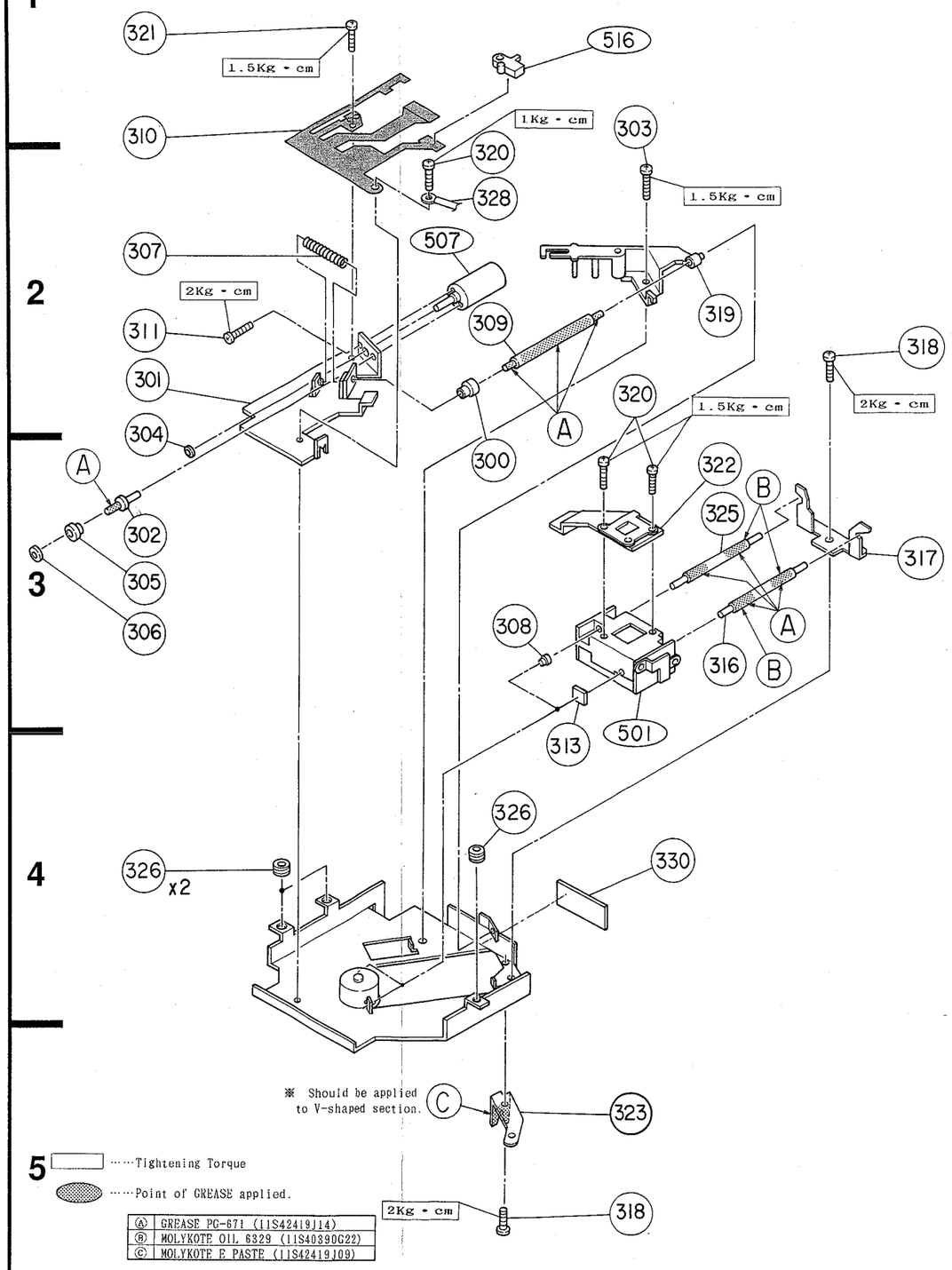



Figure 25



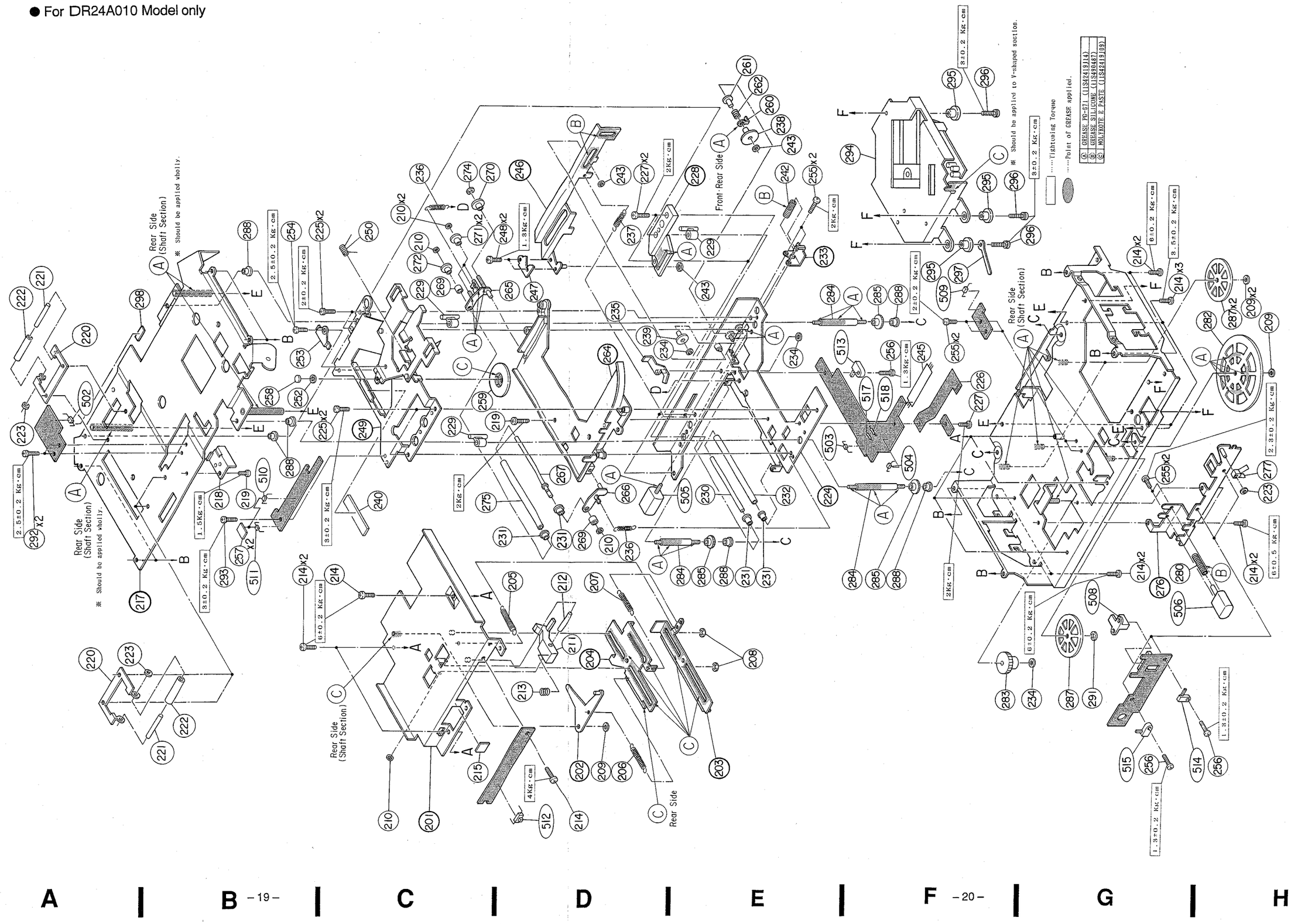
# Exploded View (CD Mechanism) (1/2)

● For DR24A010 Model only



# Exploded View (CD Mechanism) (2/2)

● For DR24A010 Model only



# CD Mechanism Assembly Parts List

## <For DR24A010 Model Only>

| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 205 | 4-D | 41B11514W04 | Spring, Extension |
| 206 | 5-D | 41B11514W05 | Spring, Extension |
| 207 | 4-D | 41B11514W06 | Spring, Extension |
| 208 | 4-E | 04C42091G02 | Ring, "E" (M3. 2) |
| 209 | | 04B41345P04 | Washer, Lock (M2. 6) |
| 210 | | 04B41345P02 | Washer, Lock (M1. 7) |
| 211 | 4-D | 45A11483W01 | Arm, Lock Magazine |
| 212 | 4-D | 47A11405W01 | Shaft, Arm Lock |
| 213 | 4-D | 41A11480W02 | Spring, Compression |
| 214 | | 03S44205G30 | Screw, Pan (M2. 6 X 4) |
| 215 | 5-C | 14S20875W87 | Insulator, Cover |
| 218 | 3-B | 43A13109W01 | Spacer, Magazine |
| 219 | | 03S44205G87 | Screw, Pan (M2 X 4) |
| 220 | | 41A11425W01 | Spring, M. Hold |
| 221 | | 47A11428W01 | Roller, M. Hold |
| 222 | | 47A11429W01 | Shaft, Roller |
| 223 | | 04B41345P01 | Washer, Lock (M1. 2) |
| 225 | | 03S40014G15 | Screw, W/Washer (M2 X 8) |
| 226 | 3-F | 84T11243W01 | FPC Elevator P. C. Board |
| 227 | | 03S40014G61 | Screw, W/Washer (M2 X 5) |
| 229 | | 45A11284W01 | Arm, Elevator |
| 230 | 3-E | 47A11273W01 | Shaft, Roller Under |
| 231 | | 43A11272W01 | Bush, Roller |
| 232 | 3-E | 75A11925W01 | Rubber, Roller |
| 234 | | 04B41345P13 | Washer, Lock (M1. 7) |
| 235 | 2-D | 01A11565W01 | Assy., Rivet Arm Switch DL |
| 236 | | 41B11514W08 | Spring, Extension |
| 237 | 2-D | 41B11514W02 | Spring, Extension |
| 238 | 2-E | 44A11481W01 | Gear, Lever Middle |
| 239 | 3-D | 44B22139W01 | Gear, Lever |
| 240 | 3-C | 75A96179F01 | Sheet, Support Disc |
| 242 | 2-E | 44A11281W01 | Worm |
| 243 | | 04B41345P22 | Washer, Lock (M2. 6) |
| 245 | 3-F | 30T73687F17 | Parallel, Wire (3P) |
| 247 | 2-D | 45A11441W01 | Arm, Block A Magazine |
| 248 | 2-D | 03S94385F01 | Screw, Pan (M1. 7 X 2. 3) |
| 250 | 2-C | 41A11559W01 | Spring, Torsion |
| 252 | 3-B | 04B41345P24 | Washer, Lock (M2. 1) |
| 253 | 3-B | 07A11468W01 | Plate, Top |
| 254 | 2-B | 03S44205G94 | Screw, Pan (M1. 7 X 2) |
| 255 | | 03S40014G62 | Screw W/Washer (M2 X 3) |
| 256 | | 03S10042W06 | Screw, Pan (M2 X 7) |
| 257 | 4-B | 75S72374F97 | Cushion, Rubber |
| 258 | 3-B | 43A41006F01 | Spacer, Polyslider |
| 259 | 3-C | 01A31486W01 | Assy., Rivet Clamper |
| 260 | 1-E | 45A31789W01 | Arm, Kick Gear |
| 261 | 1-E | 43A11485W01 | Bush, Gear |
| 262 | 1-E | 41A11480W01 | Spring, Compression |
| 265 | 2-D | 01A11566W01 | Assy., Rivet Arm Roller |
| 266 | 3-D | 01A11567W01 | Assy., Rivet Arm Roller (R) |
| 267 | 3-D | 47A11274W01 | Shaft, Roller |
| 269 | | 47A11302W01 | Roller, Lifter |
| 270 | 2-C | 44A11278W01 | Worm |
| 271 | 2-C | 44A11279W01 | Gear, Roller Middle |
| 272 | 2-C | 44A11280W01 | Gear, Loading Roller |
| 274 | 2-C | 04C42091G06 | Ring, "E" (M1. 5) |
| 275 | 3-C | 75A11925W01 | Rubber, Roller |
| 277 | 3-H | 45A11265W01 | Arm, Switch HP |
| 280 | 4-G | 44A11276W01 | Worm |
| 282 | 2-H | 44B11283W01 | Gear, Timing |
| 283 | 4-F | 44A11275W01 | Worm Wheel |
| 284 | | 47A12135W01 | Shaft, Screw Elevator |
| 285 | | 44A11277W01 | Gear, Screw |
| 287 | | 44B11282W01 | Gear, Idle |
| 288 | | 43A11271W01 | Bearing, Screw Elevator |
| 291 | 4-G | 04C42091G11 | Ring, "E" (M2. 5) |
| 292 | 4-A | 03S94385F09 | Screw, Pan (M2 X 3) |
| 293 | 4-B | 03S44205G99 | Screw, Bind (M2 X 3) |
| 294 | 2-F | 01V21800W05 | Assy., Drive Unit |
| 295 | | 43A12211W01 | Sleeve, Cushion |

NOTE : The parts without part numbers are not supplied.

| Symbol No. | Index | Part No. | Description | | |
|---|---|---|---|---|---|
| 296 | | 03S38013W10 | Screw, Pan (M2 X 7) | | |
| 297 | 2-F | 29C41045P09 | Lug, Wrap Around | | |
| 298 | 2-A | 75A20928W01 | Rubber, Top Chassis | | |
| 300 | 3-B | 44A90998F01 | Gear, Screw | | |
| 301 | 2-A | 07C10922W02 | Bracket, Motor | | |
| 302 | 3-A | 46A91007F02 | Stud, Gear | | |
| 303 | 1-C | 03S40014G07 | Screw, W/Washer (M2 X 4) | | |
| 304 | 2-A | 44A90996F01 | Gear, Motor | | |
| 305 | 3-A | 44A90997F01 | Gear, Middle | | |
| 306 | 3-A | 04B41345P02 | Washer, Lock (M1. 7) | | |
| 307 | 2-A | 41A10928W03 | Spring, Shaft-150 | | |
| 308 | 3-B | 43A13508W01 | Spacer, Shaft | | |
| 309 | 2-B | 47A10927W01 | Shaft, Screw | | |
| 310 | 1-A | 84T15149W01 | FPC Actuate P. C. Board | | |
| 311 | 3-A | 03S40014G66 | Screw, W/Washer (M2 X 3. 5) | | |
| 313 | 4-C | 75A21138W01 | Sheet, Shaft | | |
| 316 | 3-C | 47A20146W01 | Shaft, Pick-Up-50° | | |
| 317 | 3-D | 07A10921W01 | Bracket, Shaft | | |
| 318 | | 03S40014G62 | Screw, W/Washer (M2 X 3) | | |
| 319 | 2-C | 07B10923W01 | Bracket, Screw | | |
| 320 | | 03D40121T38 | Screw, W/Double Washer (M2 X 5) | | |
| 321 | 1-A | 03S40014G69 | Screw, W/Washer (M2 X 8. 5) | | |
| 322 | 3-C | 41C10925W02 | Spring, Nut | | |
| 325 | 3-C | 47A21175W01 | Shaft, Pick-Up -50°(B) | | |
| 326 | | 75A12210W01 | Rubber, Cushion | | |
| 328 | 2-B | 01T70458F02 | Assy., GND Wire | | |
| 330 | 4-C | 14S81482F10 | Insulator, Cover | | |

| Symbol No. | Index | Part No. | Description | | |
|---|---|---|---|---|---|
| **Miscellaneous** | | | | | |
| 501 | 3-C | 88T15309W01 | Pick-Up SF-87. 5 | | |
| 502 | 3-A | 48T16057W01 | LED, AN501 (RED) | | |
| 503 | 3-E | 48T16057W02 | LED, AN501-B1 (RED) | | |
| 504 | 3-F | 48T16057W02 | LED, AN501-B1 (RED) | | |
| 505 | 3-E | 59T90879F01 | Motor, Load 6V-260mA (LOADING) | | |
| 506 | 4-G | 59T15716W01 | Motor, Load 8V-330mA (ELEVATOR) | | |
| 507 | 2-C | 59T52973F03 | Motor, Servo 6V-210mA (SLED) | | |
| 508 | 4-G | 48T15722W01 | Interrupter Photo, GP1S51 | | |
| 509 | 2-F | 48T15938W02 | TR., Photo PS5022 | | |
| 510 | 3-B | 48T15938W02 | TR., Photo PS5022 | | |
| 511 | 4-B | 48T15938W02 | TR., Photo PS5022 | | |
| 512 | 5-D | 40T10876W12 | Switch, Tact SKHLAJ (EJECT) | | |
| 513 | 3-E | 40T71025F01 | Switch, Detector (LOADING) | | |
| 514 | 5-H | 40T71025F01 | Switch, Detector (HOME POSITION) | | |
| 515 | 5-G | 40T71025F01 | Switch, Detector (MAGAZINE) | | |
| 516 | 1-C | 40T71025F01 | Switch, Detector (LIMIT) | | |

NOTE : The parts without part numbers are not supplied.

# CD Mechanism Assembly Parts List

## <For DR24A020 Model Only>

| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 205 | 4-D | 41B11514W04 | Spring, Extension |
| 206 | 5-D | 41B11514W05 | Spring, Extension |
| 207 | 4-D | 41B11514W06 | Spring, Extension |
| 208 | 4-E | 04B41345P39 | Washer, Lock (M3. 5) |
| 209 | | 04B41345P04 | Washer, Lock (M2. 6) |
| 210 | | 04B41345P02 | Washer, Lock (M1. 7) |
| 211 | 4-D | 45A11483W01 | Arm, Lock Magazine |
| 212 | 4-D | 47A11405W01 | Shaft, Arm Lock |
| 213 | 4-D | 41A11480W02 | Spring, Compression |
| 214 | | 03S44205G30 | Screw, Pan (M2. 6 X 4) |
| 215 | | 04C42091G06 | Ring, "E" (M1. 5) |
| 218 | | 03S44205G99 | Screw, Bind (M2 X 3) |
| 219 | 3-C | 03S44205G87 | Screw, Pan (M2 X 4) |
| 220 | | 43A11271W01 | Bearing, Screw Elevator |
| 221 | | 44B11282W01 | Gear, Idle |
| 222 | | 44A11277W01 | Gear, Screw |
| 223 | | 04B41345P01 | Washer, Lock (M1. 2) |
| 225 | | 03S38013W07 | Screw, Pan (M2 X 8. 5) |
| 226 | 3-F | 84T11243W01 | EPC Elevator P. C. Board |
| 227 | | 03S44205G95 | Screw, Bind (M2 X 4) |
| 229 | | 45A11284W01 | Arm, Elevator |
| 230 | 3-E | 01A40510W01 | Assy., Shaft Roller Under |
| 231 | | 43A11272W01 | Bush, Roller |
| 232 | 4-G | 04C42091G11 | Ring, "E" (M2. 5) |
| 233 | | 47A12135W01 | Shaft, Screw Elevator |
| 234 | | 04B41345P13 | Washer, Lock (M1. 7) |
| 235 | 3-D | 01A11565W01 | Assy., Rivet Arm Switch |
| 236 | | 41B11514W08 | Spring, Extension |
| 237 | 2-D | 41B11514W02 | Spring, Extension |
| 238 | 2-E | 44A11481W01 | Gear, Lever Middle |
| 239 | 2-E | 44B22139W01 | Gear, Lever |
| 240 | 4-F | 41A31495W01 | Spring, Elevator |
| 242 | 2-E | 44A11281W01 | Worm |
| 243 | 2-E | 04B41345P22 | Washer, Lock (M2. 6) |
| 245 | 3-F | 30T73687F17 | Wire, Parallel (3P) |

| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 247 | 2-D | 45A11441W01 | Arm, Block A Magazine |
| 248 | 2-D | 03S94385F01 | Screw, Pan (M1.7 X 2. 3) |
| 250 | 2-C | 41A11559W01 | Spring, Torsion |
| 252 | 3-B | 04B41345P24 | Washer, Lock (M2. 1) |
| 253 | 3-B | 07A31787W01 | Plate, Top |
| 254 | 2-B | 03S44205G94 | Screw, Pan (M1.7 X 2) |
| 255 | | 03S40014G62 | Screw, W/Washer (M2 X 3) |
| 256 | | 03S10042W06 | Screw, Pan (M2 X 7) |
| 257 | 2-G | 29C41045P09 | Lug, Wrap Around |
| 258 | 3-B | 43A41006F01 | Spacer, Polyslider |
| 259 | 3-C | 01A31782W01 | Assy., Rivet Clamper |
| 260 | 2-E | 45A31789W01 | Arm, Kick Gear |
| 261 | 2-E | 43A11485W01 | Bush, Gear |
| 262 | 2-E | 41A11480W01 | Spring, Compression |
| 265 | 2-D | 01A31779W01 | Assy., Rivet Arm Roller (L) |
| 266 | 3-D | 01A31780W01 | Assy., Rivet Arm Roller (R) |
| 267 | 3-D | 01A40509W01 | Assy., Shaft Roller |
| 268 | 4-F | 44A11275W01 | Worm, Wheel |
| 269 | | 47A11302W01 | Roller, Lifter |
| 270 | 2-C | 44A11278W01 | Worm |
| 271 | 2-C | 44A11279W01 | Gear, Roller Middle |
| 272 | 2-C | 44A11280W01 | Gear, Loading Roller |
| 273 | | 03S38013W10 | Screw, Pan (M2 X 7) |
| 274 | 2-G | 44B11283W01 | Gear, Timing |
| 275 | | 43A12211W01 | Sleeve, Cushion |
| 277 | 3-H | 45A31790W01 | Arm, Switch HP |
| 278 | 2-F | 01V21800W05 | Assy., Drive Unit |
| 280 | 4-G | 44A11276W01 | Worm |
| 282 | 3-C | 43A41006F01 | Spacer, Polyslider |
| 283 | | 03S40014G12 | Screw, W/Washer (M2.6 X 4) |
| 284 | | 41A11425W01 | Spring, M. Hold |
| 285 | | 47A11428W01 | Roller, M. Hold |
| 286 | | 47A11429W01 | Shaft, Roller |
| 287 | | 03S44205G96 | Screw, Bind (M2 X 5) |
| 300 | 3-B | 44A90998F01 | Gear, Screw |
| 301 | 2-A | 07C10922W02 | Bracket, Motor |
| 302 | 3-A | 46A91007F02 | Stud, Gear |
| 303 | 2-C | 03S40014G07 | Screw, W/Washer (M2 X 4) |
| 304 | 2-A | 44A90996F01 | Gear, Motor |
| 305 | 3-A | 44A90997F01 | Gear, Middle |

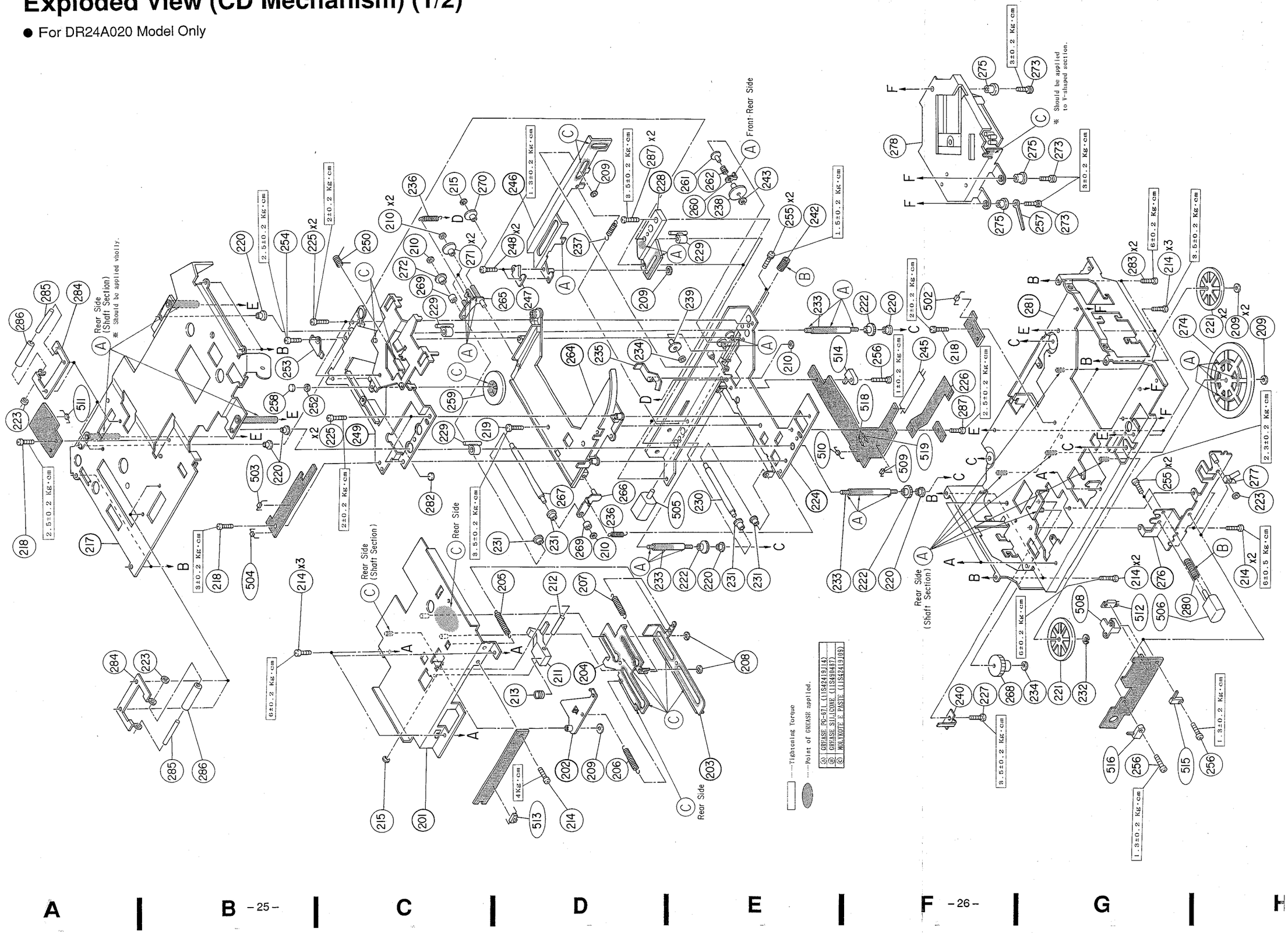
NOTE : The parts without part numbers are not supplied.

| Symbol No. | Index | Part No. | Description | | |
|---|---|---|---|---|---|
| 306 | 3-A | 04B41345P02 | Washer, Lock (M1. 7) | | |
| 307 | 2-A | 41A10928W03 | Spring, Shaft-150 | | |
| 308 | 3-B | 43A13508W01 | Spaceer, Shaft | | |
| 309 | 2-B | 47A10927W01 | Shaft, Screw | | |
| 310 | 2-A | 84T15149W01 | FPC Actuate P. C. Board | | |
| 311 | 2-A | 03S40014G66 | Screw, W/Washer (M2 × 3. 5) | | |
| 312 | 2-B | 01T70458F02 | Assy., GND Wire | | |
| 313 | 4-C | 75A21138W01 | Sheet, Shaft | | |
| 315 | | 75A12210W01 | Rubber, Cushion | | |
| 316 | 3-C | 47A20146W01 | Shaft, Pick-Up-50° | | |
| 317 | 3-D | 07A10921W01 | Bracket, Shaft | | |
| 318 | | 03S40014G62 | Screw, W/Washer (M2 × 3) | | |
| 319 | 2-C | 07B10923W01 | Bracket, Screw | | |
| 320 | | 03D40121T38 | Screw, W/Double Washer (M2 × 5) | | |
| 321 | 1-B | 03S40014G69 | Scerw, W/Washer (M2 × 8. 5) | | |
| 322 | 3-C | 41C10925W02 | Spring, Nut | | |
| 324 | 3-C | 47A21175W01 | Shaft, Pick-Up-50° (B) | | |
| 325 | 4-C | 14S81482F10 | Insulator, Cover | | |
| **Miscellaneous** | | | | | |
| 501 | 4-C | 88T15309W01 | Pick-Up Unit SF-87. 5 | | |
| 502 | 2-F | 48T16057W01 | LED, AN501 (RED) | | |
| 503 | 3-B | 48T16057W01 | LED, AN501 (RED) | | |
| 504 | 4-B | 48T16057W01 | LED, AN501 (RED) | | |
| 505 | 3-D | 59T90879F01 | Motor, Load 6V-260mA (LOADING) | | |
| 506 | 4-G | 59T15716W01 | Motor, Load 8V-330mA (ELEVATOR) | | |
| 507 | 2-B | 59T52973F03 | Motor, Servo 6V-210mA (SLED) | | |
| 508 | 4-G | 48T15722W01 | Interrupter, Photo GP1S51 | | |
| 509 | 3-F | 48T15938W03 | Transistor, Photo PS5022-B1 | | |
| 510 | 3-E | 48T15938W03 | Transistor, Photo PS5022-B1 | | |
| 511 | 3-A | 48T15938W02 | Transistor, Photo PS5022 | | |
| 512 | 4-G | 48T51089F04 | Transistor, 2SA937 | | |
| 513 | 5-D | 40T10876W12 | Switch, Tact SKHLAJ (EJECT) | | |
| 514 | 3-E | 40T71025F01 | Switch, Detector (LOADING) | | |
| 515 | 5-G | 40T71025F01 | Switch, Detector (HOME POSITION) | | |
| 516 | 5-G | 40T71025F01 | Switch, Detector (MAGAZINE) | | |
| 517 | 1-C | 40T71025F01 | Switch, Detector (LIMIT) | | |

NOTE : The parts without part numbers are not supplied.

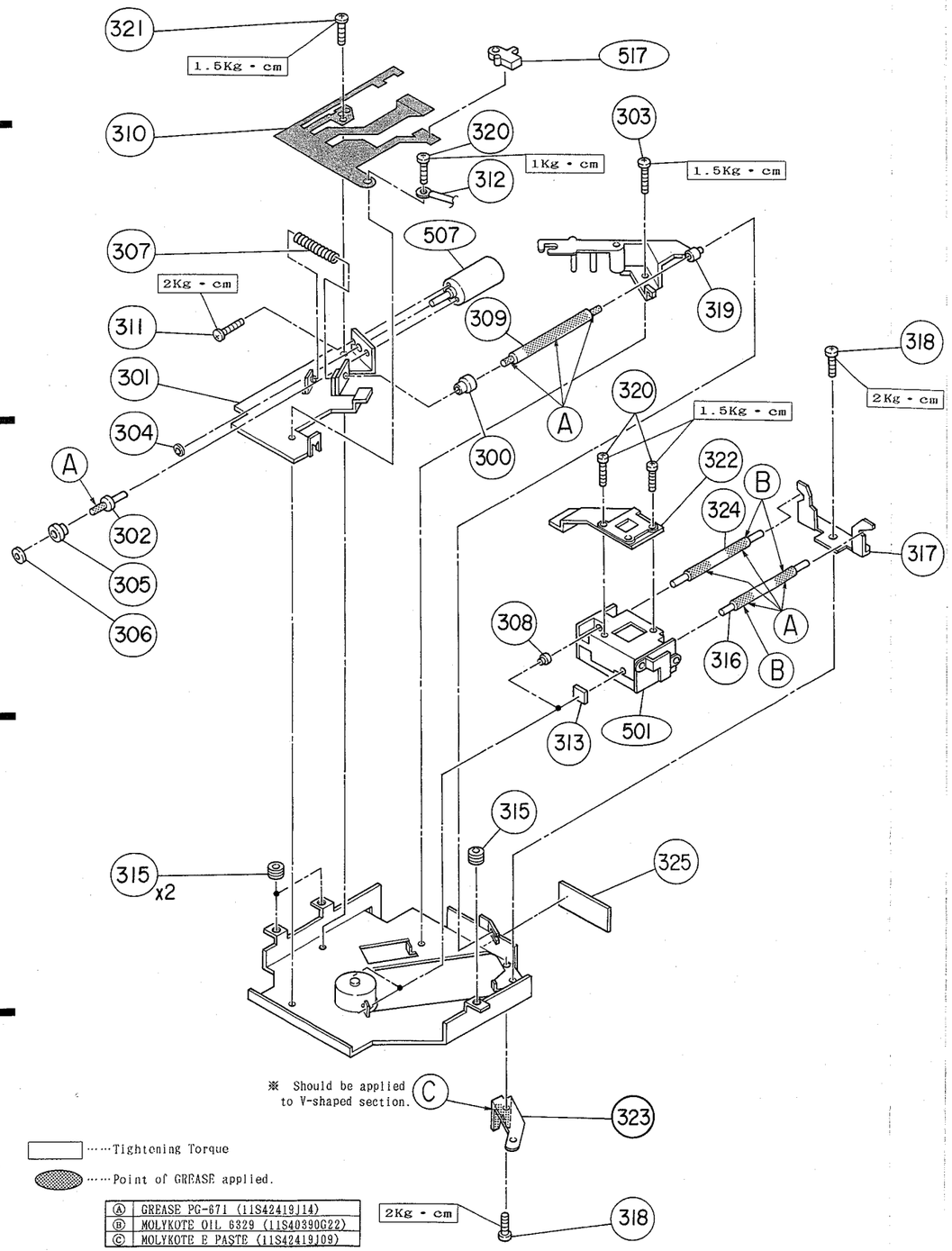
# Exploded View (CD Mechanism) (1/2)

● For DR24A020 Model Only



# Exploded View (CD Mechanism) (2/2)

● For DR24A020 Model only




## Memo

# CD Mechanism Assembly Parts List

## <For DR24A02A/030/040 Model Only>

| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 205 | 4-D | 41B11514W04 | Spring, Extension |
| 206 | 5-D | 41B11514W05 | Spring, Extension |
| 207 | 4-D | 41B11514W06 | Spring, Extension |
| 208 | 4-E | 04B41345P39 | Washer, Lock (M3. 5) |
| 209 | | 04B41345P04 | Washer, Lock (M2. 6) |
| 210 | | 04B41345P02 | Washer, Lock (M1. 7) |
| 211 | 4-D | 45A11483W01 | Arm, Lock Magazine |
| 212 | 4-D | 47A11405W01 | Shaft, Arm Lock |
| 213 | 4-D | 41A11480W02 | Spring, Compression |
| 214 | | 03S44205G30 | Screw, Pan (M2. 6 × 4) |
| 215 | | 04C42091G06 | Ring, "E" (M1. 5) |
| 218 | | 03S44205G99 | Screw, Bind (M2 × 3) |
| 219 | 3-C | 03S44205G87 | Screw, Pan (M2 × 4) |
| 220 | | 43A11271W01 | Bearing, Screw Elevator |
| 221 | | 44B11282W01 | Gear, Idle |
| 222 | | 44A11277W01 | Gear, Screw |
| 223 | 3-H | 04B41345P01 | Washer, Lock (M1. 2) |
| 225 | | 03S38013W07 | Screw, Pan (M2 5 8. 5) |
| 226 | 3-F | 84T11243W01 | EPC Elevator P. C. Board |
| 227 | 4-F | 03S44205G95 | Screw, Bind (M2 × 4) |
| 229 | | 45A11284W01 | Arm, Elevator |
| 230 | 3-E | 01A40510W01 | Assy., Shaft Roller Under |
| 231 | | 43A11272W01 | Bush, Roller |
| 232 | | 04C42091G11 | Ring, "E" (M2. 5) |
| 233 | | 47A12135W01 | Shaft, Screw Elevator |
| 234 | | 04B41345P13 | Washer, Lock (M1. 7) |
| 235 | 3-D | 01A11565W01 | Assy., Rivet Arm Switch |
| 236 | | 41B11514W08 | Spring, Extension |
| 237 | 2-D | 41B11514W02 | Spring, Extension |
| 238 | 2-E | 44A11481W01 | Gear, Lever Middle |
| 239 | 2-E | 44B22139W01 | Gear, Lever |
| 240 | 4-F | 41A31495W01 | Spring, Elevator |
| 242 | 2-E | 44A11281W01 | Worm |
| 243 | 2-E | 04B41345P22 | Washer, Lock (M2. 6) |
| 245 | 3-F | 30T73687F17 | Wire, Parallel (3P) |
| 247 | 2-D | 45A11441W01 | Arm, Block A Magazine |
| 248 | 2-D | 03S94385F01 | Screw, Pan (M1.7 × 2. 3) |
| 250 | 2-C | 41A11559W01 | Spring, Torsion |
| 252 | 3-B | 04B41345P24 | Washer, Lock (M2. 1) |
| 253 | 3-B | 07A31787W01 | Plate, Top |
| 254 | 2-B | 03S44205G94 | Screw, Pan (M1.7 × 2) |
| 255 | | 03S40014G62 | Screw, W/Washer (M2 × 3) |
| 256 | | 03S10042W06 | Screw, Pan (M2 × 7) |
| 257 | 2-G | 29C41045P09 | Lug, Wrap Around |
| 258 | 3-B | 43A41006F01 | Spacer, Polyslider |
| 259 | 3-C | 01A31782W01 | Assy., Rivet Clamper |
| 260 | 2-E | 45A31789W01 | Arm, Kick Gear |
| 261 | 2-E | 43A11485W01 | Bush, Gear |
| 262 | 2-E | 41A11480W01 | Spring, Compression |
| 265 | 2-D | 01A31779W01 | Assy., Rivet Arm Roller (L) |
| 266 | 3-D | 01A31780W01 | Assy., Rivet Arm Roller (R) |
| 267 | 3-D | 01A40509W01 | Assy., Shaft Roller |
| 268 | 4-F | 44A11275W01 | Worm, Wheel |
| 269 | | 47A11302W01 | Roller, Lifter |
| 270 | 2-C | 44A11278W01 | Worm |
| 271 | 2-C | 44A11279W01 | Gear, Roller Middle |
| 272 | 2-C | 44A11280W01 | Gear, Loading Roller |
| 273 | | 03S38013W10 | Screw, Pan (M2 × 7) |
| 274 | 2-G | 44B11283W01 | Gear, Timing |
| 275 | | 43A12211W01 | Sleeve, Cushion |
| 277 | 3-H | 45A31790W01 | Arm, Switch HP |
| □ 278 | 2-F | 01V43800W61 | Assy., Drive Unit |
| ○ 278 | 2-F | 01V43500W73 | Assy., Drive Unit |
| △ 278 | 2-F | 01V43500W73 | Assy., Drive Unit |
| 280 | 4-G | 44A11276W01 | Worm |
| 282 | | 03S44205G96 | Screw, Bind (M2 × 5) |
| 283 | | 03S40014G12 | Screw, W/Washer (M2. 6 × 4) |
| 300 | 3-B | 44A90998F01 | Gear, Screw |
| 301 | 2-A | 07C10922W02 | Bracket, Motor |
| 302 | 3-A | 46A91007F02 | Stud, Gear |

NOTE : The parts without part numbers are not supplied.

□ : For DR24A02A Model Only, ○: For DR24A030 Model Only, △: For DR24A040 Model Only, Others : Common.

| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 303 | 2-C | 03S40014G07 | Screw, W/Washer (M2 × 4) |
| 304 | 2-A | 44A90996F01 | Gear, Motor |
| 305 | 3-A | 44A90997F01 | Gear, Middle |
| 306 | 3-A | 04B41345P02 | Washer, Lock (M1. 7) |
| 307 | 2-A | 41A10928W03 | Spring, Shaft-150 |
| 308 | | 07A30961W01 | Stopper, Shaft (B) |
| 309 | 2-B | 47A10927W02 | Shaft, Screw |
| □ 310 | 1-A | 84T15149W01 | FPC Actuate P. C. Board |
| ○ 310 | 1-A | 84T45270W01 | FPC Actuate P. C. Board |
| △ 310 | 1-A | 84T45270W01 | FPC Actuate P. C. Board |
| 311 | 2-A | 03S40014G66 | Screw, W/Washer (M2 × 3. 5) |
| 312 | 2-B | 01T70458F02 | Assy., GND Wire |
| 313 | | 03S70494F17 | Screw, Pan (M1. 7 × 8) |
| 315 | | 75A12210W01 | Rubber, Cushion |
| 316 | 3-C | 47A30925W01 | Shaft, Pick-Up |
| 317 | 1-B | 07A40743W01 | Bracket |
| □ 318 | 3-B | 04S40075G61 | Washer, Polyslider (M2. 1) |
| ○ 318 | 3-B | 04S40075G06 | Washer, Polyslider (M2. 1) |
| △ 318 | 3-B | 04S40075G06 | Washer, Polyslider (M2. 1) |
| 319 | 2-C | 07B10923W01 | Bracket, Screw (M2. 1) |
| 320 | | 03D40121T38 | Screw, W/Double Washer (M2 × 5) |
| 321 | 1-B | 03S40014G69 | Scerw, W/Washer (M2 × 8. 5) |
| 322 | 3-C | 41C10925W02 | Spring, Nut |

**Miscellaneous**

| | | | |
|---|---|---|---|
| 501 | 4-C | 88T15309W01 | Pick-Up Unit SF-87. 5 |
| 502 | 2-F | 48T16057W01 | LED, AN501 (RED) |
| 503 | 3-B | 48T16057W01 | LED, AN501 (RED) |
| 504 | 4-B | 48T16057W01 | LED, AN501 (RED) |
| 505 | 3-D | 59T90879F01 | Motor, Load 6V-260mA (LOADING) |
| 506 | 4-G | 59T15716W01 | Motor, Load 8V-330mA (ELEVATOR) |
| 507 | 2-B | 59T52973F03 | Motor, Servo 6V-210mA (SLED) |
| 508 | 4-G | 48T15722W01 | Interrupter, Photo GP1S51 |
| 509 | 3-F | 48T15938W03 | Transistor, Photo PS5022-B1 |
| 510 | 3-E | 48T15938W03 | Transistor, Photo PS5022-B1 |

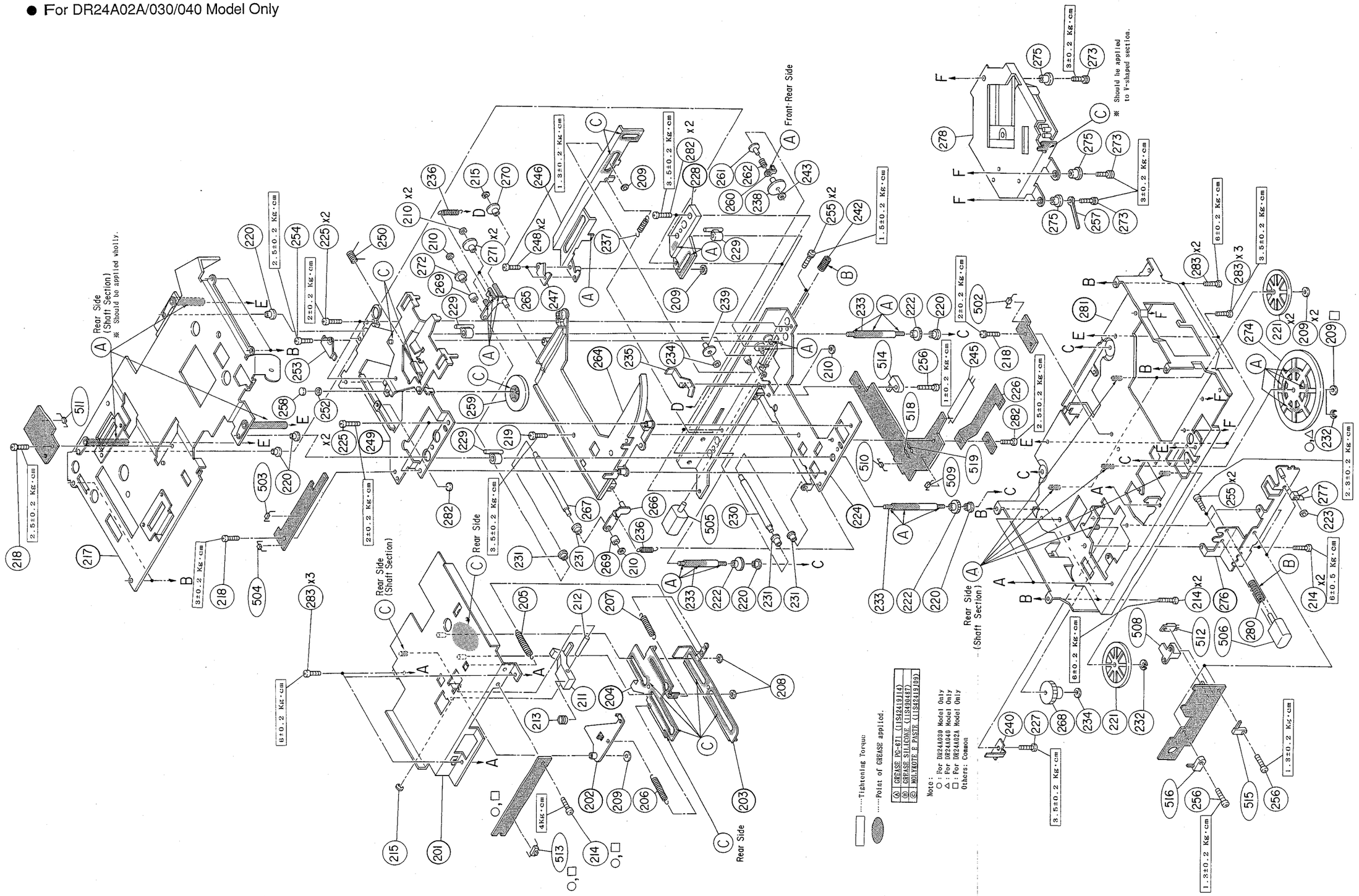
| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 511 | 3-A | 48T15938W02 | Transistor, Photo PS5022 |
| 512 | 4-G | 48T51089F04 | Transistor, 2SA937 |
| □ 513 | 5-D | 40T10876W12 | Switch, Tact SKHLAJ (EJECT) |
| ○ 513 | 5-D | 40T10876W12 | Switch, Tact SKHLAJ (EJECT) |
| 514 | 3-E | 40T71025F01 | Switch, Detector (LOADING) |
| 515 | 5-G | 40T71025F01 | Switch, Detector (HOME POSITION) |
| 516 | 5-G | 40T71025F01 | Switch, Detector (MAGAZINE) |
| 517 | 1-C | 40T71025F01 | Switch, Detector (LIMIT) |

NOTE : The parts without part numbers are not supplied.

□ : For DR24A02A Model Only, ○ : For DR24A030 Model Only, △ : For DR24A040 Model Only, Others : Common.

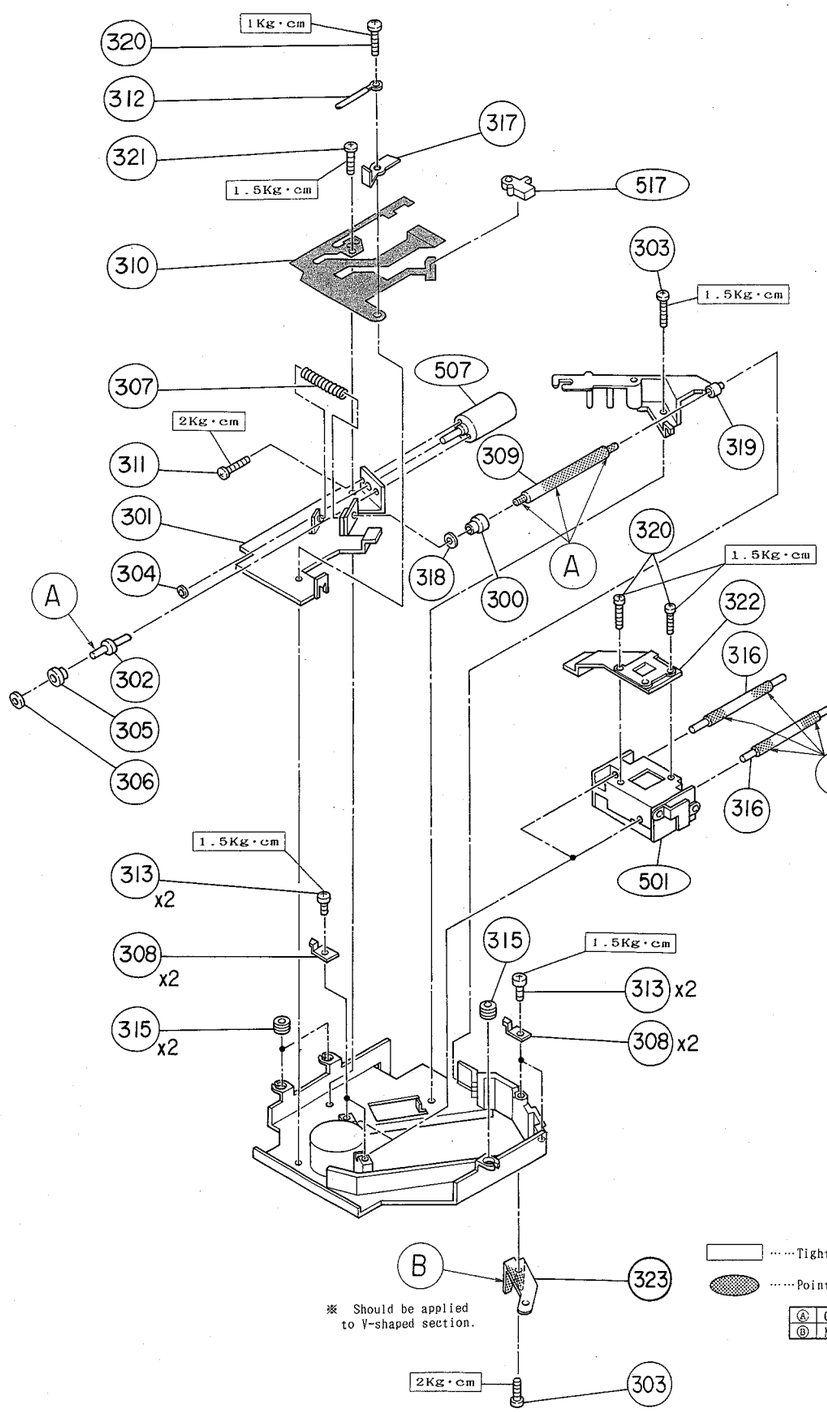
# Exploded View (CD Mechanism) (1/2)

● For DR24A02A/030/040 Model Only


Front-Rear Side
Rear Side (Shaft Section) ※ Should be applied wholly.
Rear Side (Shaft Section)
※ Should be applied to V-shaped section.
Rear Side
Rear Side (Shaft Section)
Rear Side
Rear Side
Rear Side (Shaft Section)
·····Tightening Torque
·····Point of GREASE applied.
Ⓐ GREASE PG-671 (11S42419114)
Ⓑ GREASE SILICONE (11S49904B7)
Ⓒ MOLYKOTE E PASTE (11S42419092)
Note:
○ : For DR24A030 Model Only
△ : For DR24A040 Model Only
□ : For DR24A02A Model Only
Others: Common

# Exploded View (CD Mechanism) (2/2)

● For DR24A02A/030/040 Model only




## Memo